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AMERICAN EDUCATIONAL MONTHLY.

JANUARY, 1870.

SYSTEMATIC TECHNICAL EDUCATION.

THOUGHTFUL working men are every day becoming more and more impressed with the insufficiency of ordinary education as a preparation for the diversified duties and employments of modern life. The three learned professions of the past have multiplied to thirty, each requiring more manifold and various learning than did either of the original three. The schools must provide for these new requirements. How shall they do it?

This, if not the great educational question of to-day, will certainly be that of to-morrow, and to-morrow is near at hand. It is worth the while of teachers therefore to consider both the conditions of the question and the suggestions of competent advisers toward its solution.

Among the men who have given much time and thought to the consideration of this matter and are recognized as especially qualified to discuss it with understanding and sound judgment, none is worthy of a more attentive hearing than Mr. J. Scott Russell. His "Systematic Technical Education" contains a more elaborate statement of the educational needs of the times, than any other writing that we have seen; and being a book not likely to fall into the hands of many of our readers, we shall draw somewhat freely from its pages; particularly from the chapters describing an ideal technical university—its teaching, and

teachers, its students, and their employments in life, and a curriculum of study for twenty-two modern professions. These chapters we believe will prove of service to American teachers in suggesting broader views than now prevail of the scope of modern educational needs, and in giving a clearer conception of the various materials available and useful for educational purposes, even if they should be considered valueless as offering a model of an institution to be imitated.

We begin with Mr. Russell's survey of

THE KNOWLEDGE MOST WANTED FOR HUMAN NEEDS.

The problem of educating the highest members of our civilized community in all the branches of knowledge which shall contribute to render them valuable members of society, and worthy leaders of technical men, may seem a problem too ambitious and hopelessly large. It is also difficult in proportion to its novelty: for we may almost assert the practical discovery of the secret that "knowledge is power," and that science is the sole foundation of skill, to have been made by the present century. The maxim was created and repeated long ago, but it has been scarcely acted on until now. Tradition, not science, formed the essence of our skilled trades and professions; what was taught to us was merely that which had been taught to our fathers, who thought us sufficiently taught by the simple transmission of *their* fathers' knowledge. Heat, light and electricity were scarcely recognized as beings and agents; they were influences mysterious, almost supernatural; their laws were little known, their nature ill understood. The laws of heat, light and electricity, seem creations of modern science, and yet it would be hard to name powers more omnipotent in their action, more universal in their influence, more perfectly under the control of technical men, than these three mysterious, impalpable powers. Tribes of skilled men have in these days as their chief duty to handle and direct heat, to initiate and direct electrical currents, to manipulate the sun's rays. For all these things the skill of our fathers is of no use, and the master of modern sciences our sole teacher.

Modern science is now so broad and manifold, that it is hard to bring within one institution a sufficiently large group

of profound and able men to cover the whole ground which is necessary for the teaching of all our modern professions. But our teaching will be a failure if it is not both broad and deep. The saying that "a little learning is a dangerous thing," is just in one application—namely, that he who knows bits of a science, or bits of sciences, has knowledge of a very dangerous kind. Scarcely any problem of modern technical life can be solved by a single science. The man who manipulates a single substance, cannot manipulate that substance by a single science or a bit of a science. Whatever be the substance he handles it must have form to deal with ; and manipulation of form implies knowledge of geometry. Its manipulation may imply physical force, and the laws of force and motion are parts of physical science. But his matter is either an elementary or a compound substance, and if so, will be liable to change of quality, either in manipulation or use. The usefulness of an exquisite instrument or machine may be altogether ruined by some unheeded chemical defect, of which the manipulator happened to know nothing ; and so the professional mechanic has often been ruined from his ignorance of chemistry. Thus, bits of knowledge are dangerous things ; and even to the narrowest technical accomplishment, the largest survey of scientific truth is safest. The pioneer of social technical life cannot therefore lay down the plan of his future exertion on too large a scientific map, nor can he know his own defined province too thoroughly and deeply.

The new field of science which must be covered by our teachers must therefore be carefully mapped out before us, in order to settle who, and what sort, are to be our teachers and teaching. Even at the risk of being called theoretical, high-flown, and unpractical, we must take a large view of human knowledge, in order to pick out what is most wanted for human needs. To assist us in this selection, I have prepared the following simple map of teachable human knowledge.

Knowledge for technical men may be divided into two sorts:—(1) Knowledge of matter nature ; and (2) Knowledge of human nature.

It may also have another division:—(1) Knowledge of the

works of God and His nature; and (2) Knowledge of the works of man and his nature.

I use this phraseology in preference to the more common expressions, works, and laws of nature, because, to technical men, laws being mere empty forms of thoughts or of words, can do nothing. To a technical man who has had to do work of his own, it is impossible to look at the world and its contents, without thinking of the Worker who made the world and its contents. The technical man who has to mould matter by his will into forms which suit his invention, fancy, or use, knows very well that laws won't do work—that work must have a workman, and he knows by his own nature, that in such things as he can understand, the world around him is the work of a skilled workman, infinitely stronger, more clear-sighted, more dexterous and inventive than himself, or the cleverest of his fellow-craftsmen. To such a man I need hardly say that to study the works and the way of working of the Great Master-workman, who set agoing the machinery of the heavens, who arrayed the lily of the field in all its glory, and who contrived every grain of dust to be exquisitely symmetrical in its own crystalline atoms, and who made all matter of such a chemical nature as to reject all confused, disorganized, ill-proportioned mixtures, will be infinitely the best introduction to the man who desires to handle the powers of nature on a small scale, with the same dexterity, and according to the same ways after which God has handled matter on the large scale of the universe. For all works of man, God has already made beautiful patterns, and provided exquisite materials; and for the human workman there is no such pattern to follow as the Divine workman, His patterns, and His way of working. His way of thinking we call Philosophy, the knowledge of His patterns of work we call Science, and the knowledge of His ways of working we may call Technical or Applied Science.

Man's nature and works form the second division, and to those technical men whose business lies with living men and acting society, instead of with dead matter and forces of nature, human nature is as necessary, as difficult, and as *complicated* a study, as matter nature. But it is the duty of

a large portion of our race to teach others, guide others, and govern others; and as we all have it in the destiny of our lives either to be useful and helpful to the society we live in, or to form hindrances and obstacles in the way of social improvement and social progress, so the study of human nature is quite as practical, technical and useful as the study of matter nature.

The teacher who has to show others how to think with truth, know with exactness, choose with wisdom, and act with effect, must have studied the laws of thought, fathomed the well of truth, surveyed the range of human choice, and studied the consequences of human action. To him the human mind is the first matter of study, and the next is that human speech which man has created as the instrument of his human thought. How to speak intelligibly, elegantly, wisely, and persuasively, are four of the highest arts in human technical accomplishment, and technical excellence in these arts will go far to rule the future, as eloquence and literature have done to rule the past. But the organization of man in human society is a still greater work of human art, and the knowledge of the way in which societies have grown up into their present state of organization is an indispensable preparation to the technical men who, as historians, philosophers or legislators, have to study the amelioration of the condition of the human race. How families, races, and nations have risen, thriven, decayed, and fallen; how institutions have been reared and destroyed; how religions have served their day and disappeared—are the great lessons of human life, of which no teachers of their fellow men dare be ignorant. And lastly, those men whose technical business it is to guide a State by legislation, and lead the members of organized society upwards to increased refinement, knowledge, and well being, must add to the knowledge of past organizations of human society a thorough knowledge of all those principles of legislation, and all those organizations of administration, which must conduce to the security, wisdom, wealth, and strength of nations.

These then are two entire groups of knowledges which it is impossible to omit from our technical university without leaving it maimed, deformed, and ineffectual.

No man must be left to act on his own judgment of that which he knows only a corner or a little bit. The man who handles matter must know its whole nature; the man who handles mind must know its hidden working.

It is necessary, therefore, that we map out this human knowledge in its whole extent before we can say how much of that knowledge is suited to form part of human culture, and whether any of it can be omitted, and what are the selections to which we may be forced by want of leisure or special inaptitude. There are first the two philosophies—philosophy of nature, and philosophy of human nature. Under philosophy of nature we may consider the things around us: first, in the aspect they present to us as mere occupants of outside space, as mere empty forms. We may go further, and becoming realists, examine their natures and powers, as embodied forms or substantial realities. We may next study the matter which fills space as it has been moulded, subdivided, mixed, separated, endowed with symmetry and organization. We may recognize in universal space fixed stars, moving stars, celestial globes, planetary or lunar worlds, our own globe, its lands and seas, its mountains and valleys, its continents and islands; or we may dive into its crust and study how it has been made, or how it grew; or last, we may philosophise on that phase of being intensely more interesting than material substance or organised matter: we may study that living soul with which creation is animated—the living, growing plant; the living, locomotive animal; the creeping things, the flying things, the swimming things, that swarm around us;—the philosophy that comes nearest to ourselves, the philosophy of life. After having ransacked the world without, we may next take to the study of the world within. What is the nature of this human soul? What is this eternal inner flow of human thought? How is it that we can know what is passing without us, know what is passing within us, and so, as it were, be where we are not, know the past as well as the present, the distant as well as the near, and even have glimpses of the far future? Next we may study that part of our nature which has to do more than think and know, which has to choose and resolve, and which, choosing, resolving, and acting, becomes a moving

cause and origin, and creating power in the phenomena of nature, and in the events of society. Next we may consider the nature of those forms without which the thoughts of our human soul cannot pass into the thoughts of another human soul, without which human society, culture, and progress were impossible. The voice of thought; the manifestation of the mind of man in his handiwork; the creation of language, spoken, written, emblematic, pantomimic, creative; the whole range of the manifestation of human thought—open a wide field for philosophical, and for practical human knowledge. Next there is the study of the great story of human life; the beginnings of our race; the early families of human beings; their different natures, their varying climates, their structures, culture, and mental aptitudes; their developments into nations with knowledges, arts, social institutions, religions. All *that*, the great story of human society, forms a great volume of the history of himself, the contents of which no educated man can afford to ignore. Finally comes the study of the great ends of human nature and of human society. What is man, if not a portion of human society? What is human society, if it do not add to, promote, elevate, each human individual? Is not mutual culture, mutual help, as much the duty of human society as mutual protection? What are the means by which we can best secure the progress of the human being in society? How can we best save him from want, ignorance, disease, vice? How can we give him intelligence, refinement, well-being, usefulness, virtue? These are the great problems of human life; they form the subject of the philosophy of human society, the matter of human politics, the life of a nation.

KNOWLEDGE which cannot be turned to useful account, and which only enables its possessor to answer questions, is but metal in the ore. We may have vast heaps of it without being able to derive advantage from it; and the youth-time which is spent in acquiring it without at the same time learning to apply it to the great purposes of life and duty, is a youth-time wasted.

*A DEMONSTRATION OF THE LAWS OF
ELECTRICITY.*

THE apparatus required for this demonstration consists of a support¹ and two glass rods, together with a little piece of common red sealing wax, a knitting wire, a bit of writing paper, a silk thread, and a small piece each of red and white flannel.

The glass rods I use are common glass stirring rods, twenty centimeters long and nearly five millimeters thick.² I heat one end of each of these rods in an alcohol or (Bunsen Burner) gas-flame, till it is hot enough to readily fuse and almost burn or char the sealing wax, then rub quickly the sealing wax on the heated part of the glass rod, while slowly turning the latter. The rod fuses itself into the sealing wax, which forms a thin, translucent covering over nearly one-half of the rod (eight to nine centimeters). Thus I readily obtain two exactly equal rods,³ one end of which is glass, while the other is externally sealing wax, a resinous body; and this, while electrically in every respect as good as a heavy rod of sealing wax, has the great advantage over the latter, that it is comparatively strong, not bending in summer, and in general not subjecting the experimenter to the annoyances experienced when using the common rods of sealing wax.

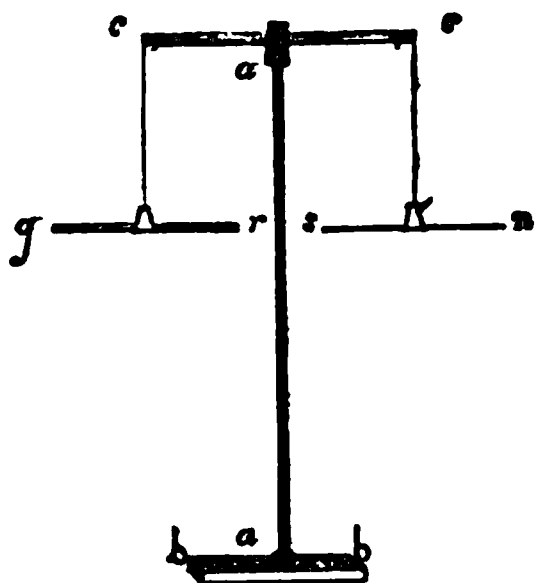
Of the paper I cut a small strip from three to five centimeters long and two to three centimeters wide in the middle, tapering towards the extremities almost to a point, and bend the middle around the rod, so as to form a stirrup. By means of a silk thread I now suspend this stirrup to the support. One such stirrup is enough; but it is better to have two, in order to support the knitting wire also, and thus to be able to exhibit several correlated facts at once.

¹ If some one of the students holds the thread while the experiments are made, no other support is needed.

² A United States nickel five cent piece has a diameter of twenty millimeters or two centimeters.

³ In handling these rods, always hold them between the thumb and first finger, taking hold in the middle of the rod.

The simplest and in many respects the best support¹ for both stirrups, every teacher can make for himself from two glass tubes, two corks and a square piece of wood.



The form I use is represented one-twentieth its size in the figure here given. The vertical glass-tube *aa*, fifty to sixty centimeters long, is inserted in a cork, and the latter fastened to the board *bb* (1 cm. thick and 10 to 12 cms. each side) by means of a little sealing wax. The horizontal tube *cc*, twenty-five to thirty

centimeters long, is connected with the vertical by means of the perforated cork, as shown in the figure. Two bits of the cork drilled out for the passage of the tubes will serve admirably to fasten the ends of the silk thread into the extremity of the tube *c*; especially if the thread is a few times wound or tied around the little cork-cylinder before the latter is introduced into the tube. A drop of sealing wax may finish the extremities *cc*. I prefer the cork-joint, between *cc* and *aa*, because it permits the taking apart of the apparatus.

The silk threads hold the paper stirrups at a distance from *cc* equal to the length of the glass rods. Into the one stirrup we now insert one of the glass rods *gr*, into the other we insert the knitting wire *ns*. Since it is very important to be able readily to distinguish the two extremities of the wire, it is best to let the stirrup be provided with a little paper arrow or pointer, as seen in the figure on the side *n*. The extremities of the rod are distinguished by the eye, *r* being the resinous or red extremity coated with sealing wax, *g* the glass extremity.

We have now the rod *gr* and the wire *ns* suspended, so as to turn with the utmost ease in a horizontal plane.

The experiments which can be performed with these exceedingly limited means are the following :

¹ This is not absolutely necessary, for any pupil may hold the thread between the thumb and first finger of his right hand while the experiments are made.

Gently draw the two rods separately through your hands, suspend the one as stated, and touch with a finger the suspended knitting wire; there is then no electricity on either of these bodies, or they are in their natural, neutral condition, as may be shown by bringing either of the ends of the other glass rod near either of the ends of the suspended wire, when neither attraction nor repulsion will be observed.—This is the first fact.

Then gently rub the red (sealing wax) extremity *R* of the second rod with the red piece of flannel, and the other (glass or white) extremity *G* with the white piece of flannel.

If we now approach either *R* or *G* to either *r* or *g*, or *n* or *s*, we shall find that these extremities successively move toward the extremity *R* or *G* presented. There is, accordingly, attraction between the bodies rubbed (*R*, *G*,) and the bodies *r*, *g*, *n*, *s* which were proved to be in their natural or neutral condition. Cutting small pieces from thin, dry,¹ paper—about one millimeter wide, and five to ten long—we find these also readily attracted by *R* and *G*, the rubbed resinous and glass bodies. This is the second fact, viz.: glass (*G*) and resin (*R*) are electricified by friction, and manifest this power by attracting light or otherwise readily moveable bodies in the natural condition.

Now rub the extremities *r* and *g* of the suspended glass rod, taking care to rub *r* with the red, *g* with the white flannel. Repeat the preceding experiment, that is, approach carefully the extremities *R* and *G* toward both *r* and *g*, avoiding contact. It will then be found that there is *repulsion* between the resinous extremities *R* and *r*, and also between the vitreous or glass-extremities *g* and *G*; but *attraction* between *R* and *g*, and also between *r* and *G*. Since *r* and *R* have been treated in precisely the same way (both having been rubbed with the red flannel) we know that they are both in the same electrical condition; (we name their electricity after the substance itself, that is resinous.) Hence, that *r* and *R* repel one another means: resinous electricity repels resinous electricity. So also for *g* and *G*.

¹ The air in the room must be rather warm and dry in order that these electrical experiments may succeed well.

Thus in general the third great fact¹ is established: Like Electricities (R and r , G and g) repel, unlike Electricities (R and g , G and r) attract one another.

In the suspended rod gr we now have a vitreous electroscope, an electrical needle. We may use it to establish the fourth great fact, viz.: that both electricities are generated at the same time. For if we present that part of the red flannel which was rubbed against the red sealing wax—(as we can easily do by simply folding the piece back so as to make the portion rubbed against r and R fold outward)—we shall find that this flannel attracts the extremity r , but repels g ; it accordingly possesses glass or vitreous electricity. So also the white flannel, which was rubbed against the glass, will be found to possess resinous electricity, because it attracts g , but repels r . In rubbing the sealing wax with the red flannel we thus produce both resinous and vitreous electricity; the former remaining on the resin, the latter on the woolen.

By means of the knitting wire we may now readily establish the classification of bodies into conductors and non-conductors: also the fundamental laws of magnetism. But what has been given will enable most teachers to demonstrate the laws referred to.

I use the word *demonstrate*. It is getting out of use; most teachers *illustrate* their teachings. But an illustration, which will do as a rhetorical figure in a campaign speech or a newspaper article, is often worse than nothing in physical science. Illustration enables the teacher to skim a large surface, while his pupil acquires a superficial knowledge of a great many things. If thorough demonstration were insisted on, much less ground would be passed over; but the mind of the student would receive that discipline which would enable him to teach himself.

¹ In the otherwise very excellent little book of *Ganot*, a queer and radical error is repeatedly committed in regard to this fact. For this law is given as a result of theory, while in reality it is simply a fact established by experiment; the hypothesis or theory itself is shaped in accordance with, and rests exclusively upon, this fact. Thus the text-book puts matters exactly upside-down, and propagates a great error.

I shall not now dwell upon the law of attraction and repulsion here demonstrated, as a universal law pervading all nature, governing the action of atoms, and even of individuals. I shall only add an important practical suggestion.

Teacher, do prepare such an apparatus. The cost is trifling. Perform the experiments in their demonstrative fullness before your class. Then permit those of the students who desire it, to repeat all the experiments themselves. Require them to pay for any thing they may break, for in that manner, and in that only, can you confer dexterity to their fingers, and care to their eyes.

GUSTAVUS HINRICHS.

SCIENTIFIC versus LITERARY PEDANTRY.

AN article headed "Useless Knowledge," reprinted from one of the English periodicals, was pointed out to me by a colleague, with the remark that the opinions expressed in the article were exactly his own.

The professor was known to me as a man opposed to scientific and kindred studies in a course of higher education; one of those who can talk so nicely on the "discipline," "power of thought," and so forth, derived from the study of Latin and Greek. I was accordingly prepared to read something anti-scientific, and found that I had not been mistaken. The writer of the article signs himself "A Cynic," and, on account of the frank avowal of his purpose and character expressed by this signature, it would perhaps be best to pass him by as a mere jester. My friend the professor, however, had made me sufficiently aware of the fact that there is a large number of teachers and professors who hold in sober earnest just such opinions as are uttered by "A Cynic." It may not be amiss, therefore, to say a few words concerning them.

"A Cynic" suggests the establishment of a "Society for the suppression of Useless Knowledge," and seems to enjoy hugely this original idea. He makes some very good remarks on the stupidity of scholarly pedants who are forever

discussing the dates of certain historical events, etc.; and he likewise shows some wit and not an excessive degree of ill-nature in commenting on the scientific "collector of bugs." But he does not stop here. He is not satisfied with merely assailing and ridiculing the pedantry of a small class, but goes so far as to express himself greatly pleased with his "ignorance" of those principles, inventions and discoveries (the steam engine, astronomical facts, etc., etc.) on which our modern civilization is so largely based. If a knowledge of such things is useless, even for the "educated," it may be time to ask somewhat seriously the question: What then is worth knowing?

Pedantry is not limited to any one pursuit. The Greek and Latin scholar is as likely to be guilty of it as the scientific specialist; and it shows a great deal of arrogance in those who confine their studies to two dead languages to claim exemption from pedantry and to hold up their particular track as the only safe road to educational excellence.

The case of the enthusiastic collector of bugs may be quoted to show that some men find contentment and even happiness, where others would never think of looking for it. It proves nothing against the importance, for the educated man, of a pretty accurate and comprehensive knowledge of the most vital principles of Science, and of the principal facts which have led to their discovery and which prove their existence. Are scientific men really guilty of arrogance when they treat with contempt a man who claims to be educated and yet cannot explain the principle of the steam-engine, nor is capable of showing any interest in the remarkable discoveries made in the stellar worlds by means of the spectroscope?

What is culture, if not that degree of maturity of mind which enables a man to feel a lively interest in the extension of truth, and to appreciate the importance and the nature of the more remarkable movements of the age? It is necessary for every man to choose a sphere in which he may hope to be more especially efficient and useful, but it becomes no man to remain indifferent to the most characteristic, as well as most important, elements of modern civilization. Scientific pedantry is generally harmless, while literary pedantry

is the worst evil which mankind has to endure. The former exerts no great influence and certainly does not impede progress. The latter, however, exerts itself to the utmost in bringing the extension of useful knowledge into disrepute, and in keeping men from the exercise of thought by tying the young down to the routine of mere book-learning. The most pedantic collector of stones and minerals will, at the most, deride the book-man for the uselessness of his work, while the book-man will make use of the advantages which past ages have left him, in order to keep science out of the schools and to inoculate young teachers with a contempt for "useful knowledge." In a word, the literary pedant has power and abuses it, while the scientific pedant has little power, and in the worst case harms no one except himself.

CHARLES A. EGGERT.

THE SCOPE AND PURPOSE OF A UNIVERSITY.

(From President ELIOT'S Inaugural Address.)

THE endless controversies whether language, philosophy, mathematics, or science supply the best mental training, whether general education should be chiefly literary or chiefly scientific, have no practical lesson for us to-day. This University recognizes no real antagonism between literature and science, and consents to no such narrow alternatives as mathematics or classics, science or metaphysics. We would have them all, and at their best. To observe keenly, to reason soundly, and to imagine vividly are operations as essential as that of clear and forcible expression; and to develop one of these faculties, it is not necessary to repress and dwarf the others. A university is not closely concerned with the applications of knowledge, until its general education branches into professional. Poetry and philosophy and science do indeed conspire to promote the material welfare of mankind; but science no more than poetry finds its best warrant in its utility. Truth and right are above utility in all realms of thought and action.

It were a bitter mockery to suggest that any subject whatever should be taught less than it now is in American colleges. The only conceivable aim of a college government in our day is to broaden, deepen, and invigorate American teaching in all branches of learning. It will be generations before the best of American institutions of education will get growth enough to bear pruning. The descendants of the Pilgrim Fathers are still very thankful for the parched corn of learning.

Recent discussions have added pitifully little to the world's stock of wisdom about the staple of education. Who blows to-day such a ringing trumpet-call to the study of language as Luther blew? Hardly a significant word has been added in two centuries to Milton's description of the unprofitable way to study languages. Would any young American learn how to profit by travel, that foolish beginning but excellent sequel to education, he can find no apter advice than Bacon's. The practice of England and America is literally centuries behind the precept of the best thinkers upon education. A striking illustration may be found in the prevailing neglect of the systematic study of the English language. How lamentably true to-day are these words of Locke: "If any one among us have a facility or purity more than ordinary in his mother-tongue, it is owing to chance, or his genius, or any thing rather than to his education or any care of his teacher."

The best result of the discussion which has raged so long about the relative educational value of the main branches of learning is the conviction that there is room for them all in a sound scheme, provided that right methods of teaching be employed. It is not because of the limitation of their faculties that boys of eighteen come to college, having mastered nothing but a few score pages of Latin and Greek, and the bare elements of mathematics. Not nature, but an unintelligent system of instruction from the primary school through the college, is responsible for the fact that many college graduates have so inadequate a conception of what is meant by scientific observation, reasoning and proof. It is possible for the young to get actual experience of all the principal methods of thought. There is a method of thought in lan-

guage, and a method in mathematics, and another of natural and physical science, and another of faith. With wise direction, even a child would drink at all these springs. The actual problem to be solved is not what to teach, but how to teach. The revolutions accomplished in other fields of labor have a lesson for teachers. New England could not cut her hay with scythes, nor the West her wheat with sickles. When millions are to be fed where formerly there were but scores, the single fish-line must be replaced by seines and trawls, the human shoulders by steam-elevators, and the wooden-axled ox-cart on a corduroy road by the smooth-running freight train. In education there is a great hungry multitude to be fed. The great well at Orvieto, up whose spiral paths files of donkeys painfully brought the sweet water in kegs, was an admirable construction in its day; but now we tap Fresh Pond in our chambers. The Orvieto well might remind some persons of educational methods not yet extinct. With good methods, we may confidently hope to give young men of twenty or twenty-five an accurate general knowledge of all the main subjects of human interest, besides a minute and thorough knowledge of the one subject which each may select, as his principal occupation in life. To think this impossible is to despair of mankind; for unless a general acquaintance with many branches of knowledge, good as far as it goes, be attainable by great numbers of men, there can be no such thing as an intelligent public opinion; and in the modern world the intelligence of public opinion is the one condition of social progress.

What has been said of needed reformation in methods of teaching the subjects which have already been nominally admitted to the American curriculum applies not only to the University, but to the preparatory schools of every grade down to the primary. The American college is obliged to supplement the American school. Whatever elementary instruction the schools fail to give, the college must supply. The improvement of the schools has of late years permitted the college to advance the grade of its teaching, and adapt the methods of its later years to men instead of boys. This improvement of the college reacts upon the schools to their

advantage; and this action and reaction will be continuous. A university is not built in the air, but on social and literary foundations which preceding generations have bequeathed. If the whole structure needs rebuilding, it must be rebuilt from the foundation. Hence, sudden reconstruction is impossible in our high places of education. Such inducements as the College can offer for enriching and enlarging the course of study pursued in preparatory schools, the Faculty has recently decided to give. The requirements in Latin and Greek grammar are to be set at a thorough knowledge of forms and general principles; the lists of classical authors accepted as equivalents for the regular standards are to be enlarged; an acquaintance with physical geography is to be required; the study of elementary mechanics is to be recommended, and prizes are to be offered for reading aloud, and for the critical analysis of passages from English authors. At the same time the University will take to heart the counsel which it gives to others.

In every department of learning, the University would search out by trial and reflection the best methods of instruction. The University believes in the thorough study of language. It contends for all languages,—Oriental, Greek, Latin, Romance, German, and especially for the mother-tongue; seeing in them all one institution, one history, one means of discipline, one department of learning. In teaching languages, it is for this American generation to invent or to accept from abroad better tools than the old; to devise or to transplant from Europe prompter and more comprehensive methods than the prevailing, and to command more intelligent labor, in order to gather rapidly and surely the best fruit of that culture and have time for other harvests.

The University recognizes the natural and physical sciences as indispensable branches of education, and has long acted upon this opinion; but it would have science taught in a rational way, objects and instruments in hand,—not from books merely, not through the memory chiefly, but by the seeing eye and the informing fingers. Some of the scientific scoffers at gerund grinding and nonsense verses might well look at home; for the prevailing methods

of teaching science, the world over, are, on the whole, less intelligent than the methods of teaching language. The University would have scientific studies in school and college and professional school develop and discipline those powers of the mind by which science has been created and is daily nourished,—the powers of observation, the inductive faculty, the sober imagination, the sincere and proportionate judgment. A student in the elements gets no such training by studying even a good text-book, though he really master it, nor yet by sitting at the feet of the most admirable lecturer.

If there be any subject which seems fixed and settled in its educational aspects, it is the mathematics; yet there is no department of the University which has been, during the last fifteen years, in such a state of vigorous experiment upon methods and appliances of teaching as the mathematical department. It would be well if the primary schools had as much faith in the possibility of improving their way of teaching multiplication.

The important place which history, and mental, moral, and political philosophy should hold in any broad scheme of education is recognized of all; but none know so well how crude are the prevailing methods of teaching these subjects as those who teach them best. They cannot be taught from books alone; but must be vivified and illustrated by teachers of active, comprehensive, and judicial mind. To learn by rote a list of dates is not to study history. Mr. Emerson says that history is biography. In a deep sense this is true. Certainly, the best way to impart the facts of history to the young is through the quick interest they take in the lives of the men and women who fill great historical scenes or epitomize epochs. From the centres so established, their interest may spread over great areas. For the young especially, it is better to enter with intense sympathy into the great moments of history, than to stretch a thin attention through its weary centuries.

Philosophical subjects should never be taught with authority. They are not established sciences; they are full of disputed matters, and open questions, and bottomless speculations. It is not the function of the teacher to settle philo-

sophical and political controversies for the pupil, or even to recommend to him any one set of opinions as better than another. Exposition, not imposition of opinions is the professor's part. The student should be made acquainted with all sides of these controversies, with the salient points of each system; he should be shown what is still in force of institutions or philosophies mainly outgrown, and what is new in those now in vogue. The very word education is a standing protest against dogmatic teaching. The notion that education consists in the authoritative inculcation of what the teacher deems true may be logical and appropriate in a convent or a seminary for priests, but it is intolerable in universities and public schools, from primary to professional. The worthy fruit of academic culture is an open mind, trained to careful thinking, instructed in the methods of philosophic investigation, acquainted in a general way with the accumulated thought of past generations, and penetrated with humility.

HINTS ON THE EDUCATION AND USE OF GESTURE.

A LETTER from a clergyman, "anxious to improve a poor delivery," contained this question:

"Can gesture be taught by principles and modes of practice, the knowledge of which will enable a person to become more graceful and expressive, and at the same time be *natural*?"

A similar question has been put to me so often, that I am convinced, independent of observation, that a very general want exists in this direction among public speakers. In consideration of this fact, I submit a few practical suggestions, that I think may help those who heed them to form a habit of graceful and expressive action, true to nature.

Every mental state is telegraphed, so to speak, through informing nerves which traverse every part of the body, and the body must perforce express the state of the mind

both by action and utterance. Expression, therefore, so far as voice and action are concerned, is purely a matter of muscular contraction and relaxation determining the character of every position and movement of the body, as well as the character of utterance.

Now it follows, that the arms and hands, in assuming and executing these movements, will be graceful or awkward in proportion to the natural grace or awkwardness of the gesticulator, and in proportion to the character and amount of practice bestowed on improvement of gesture. It can be safely affirmed, that the person *naturally* most graceful, may be made more graceful by proper practice; and the person naturally most awkward, vastly improved by the same means. No man with a true ambition or becoming modesty can fold his arms and say: "Nature has done all for me in this matter: Art cannot aid me. *I* am a privileged child of Heaven, to whom has been vouchsafed perfect grace." There are many, however, who with unconscious vanity cling to such an unreasonable conviction. The most precocious and highly favored genius, like ordinary mortals, must bow to the shrine of art, and humbly, studiously and persistently practice its requirements. Study and practice are the only perfectors. What has led many into such ignorant or egotistical independence of art, is the want of a plain, practical and philosophical system of gesture. Yet if gesture is a part of expression, it is surely regulated and directed by laws and proprieties, and subject to modes of practice, by the observation of which the best action can alone be secured.

Two main particulars enter into the consideration of gesture, the lines of expression the arms and hands are capable of presenting in a position of rest, and their lines of expression during movement. There are three lines of expression, the angle, the curve, and the straight line, regard for which determines the character of position and movement. The positions of the arms are three,—angular, curved, straight. The positions of the hands are more numerous (owing to the greater number of moveable parts they possess), all determined, however, by the three lines or elements in the mechanism of gesture. The positions of

the hands are—prone, supine, oblique, horizontal, vertical, applied, clasped, clenched, closed, distended and writhed.

The movements of the arms and hands are of three kinds, curvilinear, angular and straight, in the execution of which the arms and hands move either horizontally, obliquely or vertically in three general directions, low, middle, high.

All the foregoing positions and movements, each possessing a special language, are demanded by expression. The general laws governing their use may be stated as follows:

(1.) When grace is demanded, the curve is required both in position and movement.

(2.) In the expression of thoughts and feelings more associated with force than grace, very slight curves may sometimes be used; but generally, angles and straight lines are necessary both in position and movement.

(3.) Under the influence of elevated thoughts or sentiments, and when the attention is in an upward direction, the arms move in an ascending line, the degree of elevation in movement corresponding with the degree of elevation of thoughts, sentiments, or objects, to be expressed or designated.

(4.) In the expression of general thoughts and sentiments not particularly determined as high or low by language or association, and when describing or designating objects not specially determined as high or low, the arms move in a middle direction.

(5.) Under the influence of thoughts and sentiments which may be classified as low, and in the description and designation of objects below the middle direction, the arms move in a low direction.

These laws, controlling the general directions of movement, refer to the emphatic or expressive movement of gesture to be explained hereafter.

Innumerable modifications of the three described movements occur and are classified as relatively low, middle and high as to general direction.

There are two kinds of gesture, those used to express mental states, and those used for the purpose of description, designation and impersonation. The first are termed Expressive, the latter Mechanical. The several kinds of

Expressive gesture are named Congenial, Emphatic, Aversive, Passionative, Nervous, and Emotional. The Mechanical gestures are named Descriptive, Designative, and Impersonative.

Congenial gestures are used to express the ordinary states of mind, and subdued states, such as love, melancholy, solemnity, pathos, tranquillity; also excitements of a pleasant nature, such as animation, joy, grandeur, sublimity, courage and triumph.

Emphatic gestures are used to express excitements more associated with force than grace, such as emphasis of thought or feeling, denunciation, strong assertion, negation, indignation and the like.

Aversive gestures express under various degrees of excitement, aversions, and disapprobations, such as hatred, contempt, dismissal, rejection, threat, warning, defiance, horror, awe, fear.

Passionative gestures express all highly wrought and uncontrolled excitements, such as anger, rage, fury, despair, revenge, madness, and extremes of horror, awe and fear.

Nervous gesture is an accompaniment of expressive movement, imparting a tremor to the arms and hands; and, where not too marked and frequent, expresses the speaker's earnestness with peculiar power and effect. Impersonations of old age, exhaustion, mental and physical weakness, demand its use. The wringing of the hands, writhing of the fingers, beating of the body, and rending of the hair; that sometimes accompany the expression of intense excitement, are classed with nervous gestures. The frivolous fingerings and writhings of the embarrassed school-boy, and the meaningless vehemence and frequency of gesture usual with stump orators, are abuses of this form of gesture.

Emotional gestures are used to express certain feelings which determine the action of the arms and hands toward each other and toward the body, such as prayer, grief, modesty, caution, fear, shame, coldness, secrecy.

Descriptive gestures describe to the eye, the forms and relations of objects.

Designative gestures are used in pointing out objects and localities, and designating persons and things.

Impersonative gestures are used in the speaker's efforts to imitate the peculiarities of another's action, and in representing ideals of action.

Most gestures are composed of three movements described as follows:—(1.) Bringing the arms and hands to the desired elevation in front of the body. (2.) Sweeping outward in the direction demanded by expression on the word or words appropriate for gesticulatory emphasis. (3.) Returning to a position of repose. These movements are termed Preparatory, Expressive and Return. The second movement is the emphatic, or, as named, the expressive movement of gesture.

Gestures with reference to the Expressive movement are of two kinds—simple and compound. Simple gestures have but one emphatic stroke of the hand. Compound gestures have two or more emphatic strokes, the hand sweeping from one to the other, marking connected ideas, before the return movement.

Congenial gestures demand curve lines in the execution of the three movements, because they are used to express states of mind associated with graceful movement.

Emphatic gestures demand straight lines, angles and very slight curves in the execution of the three movements, because they express mental states more associated with force than grace.

Aversive and Passionate gestures likewise express states of mind more associated with force than grace, and demand angular and straight lines in the execution of the three movements.

Emotional gestures have, instead of the usual second movement, simply an expressive position of the hands, as when they are applied or clasped in prayer, or cover the eyes in shame and grief. In the Preparatory and Return movements of this class of gestures, angles and straight lines are necessary in bringing the hands by the shortest lines to the required expressive position and back.

The Mechanical gestures demand angles, straight lines and curves in every possible variety. The rate, extent and force of the expressive movement of the expressive class of gestures are determined by the character of thoughts and

feelings, and the degree of mental excitement to be expressed. Ordinary states of mind require moderate rate of movement, moderate force, and moderate extent or length of gesture. Elevated states of mind generally require extended expressive movements, their rate and force being determined by the degree of excitement which they express. Subdued states of mind generally require slow expressive movements, short, and possessing but little force. Strongly excited states of mind generally demand rapid, forcible, and abrupt expressive movements. The preparatory and return movements of gestures move in harmony with the degree of mental excitement expressed, but are not distinctively expressive. The hand in the execution of the expressive movement of gesture must move in harmony with the time of the voice on the word or words receiving gesticulatory emphasis. The pause after the expressive movement is longer or shorter in proportion to the degree of mental excitement expressed, and the continuation of the mind's attention at that point. Reserve the emphasis of gesture for the most emphatic word or words if you wish it to be strikingly expressive. In Mechanical gestures the rate and force of movement are of course determined by the degree of animation used in description, designation and impersonation.

All gestures to be duly expressive must start from a position of repose. The usual repose position, and the one insisted on in practice, may be thus described: The arms slightly curved falling naturally at the side, hands slightly curved, palms turned toward the thighs.

In the expression of some states of mind, it is not essential to observe the general repose position, but it is strictly essential after the expressive movement or position of gesture to bring the arms and hands by the return movement to some appropriate position of rest. The speaker who does not observe the foregoing directions will offend the cultivated taste by an incessant and unmeaning monotony of action, distracting rather than impressing attention.

Rules for guidance in practicing according to the foregoing principles will be given in another article.

*MINERALS, PLANTS, AND ANIMALS AS OBJECTS
OF POPULAR EDUCATION.*

TO train the mind of man to recognize the perfection of design in the material world around him, is one of the highest objects of secular instruction ; to teach a knowledge of the natural productions that feed the industries and supply the necessities of mankind, is a fundamental part of every practical education ; and all public education should be essentially practical. So palpable has the truth of these propositions become, that the Board of Education of New York has for some time included in its scheme elementary instruction on Plants, Animals, and Minerals. This course has been dictated by a far-sighted wisdom, a recognition of the fact that any slight extra amount of time or expense incurred in this study will be repaid tenfold to the community by the increased capabilities of the pupils. It is our purpose at present to show what is best worth teaching on these subjects, and to suggest the order and manner in which such instruction may be made to convey the broadest, soundest, and most valuable knowledge.

The objects to be attained by teaching Natural Science, under which general head the above mentioned subjects fall, are two: first, the training of the mind ; second, the giving of an extended knowledge of facts applicable to the purposes of every day life.

The training to be given by these subjects tends to produce a habit of mind of correctly observing, of accurately and readily reasoning upon, of naturally classifying, and of exactly describing the properties of material substances. Correct observation and accurate reasoning imply furthermore the distinguishing between general and special, and between essential and non-essential properties, the giving of a due value to relative properties, and the observance of all these points in such an order as shall form a natural sequence of ideas. There will be thus developed in the mind a well-defined picture of the objects under consideration, and of their relations to other objects. The capability of transferring this picture vividly, by exact description, to the minds

of others will depend upon the possession and command of a sufficient supply of accurate and well-understood terms. The immense economic importance of this education will suggest itself everywhere in the sequel.

The above-named subjects should be treated in the order of their simplicity ; this being, also, the natural order. The lifeless mineral substances are the simplest in their external characters, in their structure, and in their composition. They preceded in time the appearance of the plant and the animal, and are the foundation, so to speak, upon which these latter are constructed. The mineral kingdom is therefore to be considered first ; plants should succeed ; finally, animals.

What is to be taught of these subjects ? Generally we may say that the information to be given is divisible into two parts ; that which relates to the physical structure and history of these objects—such as their form, color, even their anatomy, life, history, and classification ; and, secondly, that which relates to their chemical composition. The first division embraces the natural history of the mineral, vegetable, and animal kingdoms ; the second, their chemistry. The knowledge of one of these divisions, without that of the other, is uselessly incomplete. The teacher in natural history will find it impossible to make his subject understood unless both himself and his pupils have some preliminary chemical knowledge of the substances of which he treats ; and he will be utterly unable to explain the uses and applications of raw material without some associated information upon the chemical principles involved in their conversion. We consider therefore that simultaneously, or rather a little in advance of the instruction in each subject by the naturalist, the chemist should explain the chemistry of that subject. In each case the knowledge conveyed should be elementary, its exposition must be simple and familiar ; but we claim that however elementary, simple, and familiar, it shall be soundly scientific in its facts.

The manner in which this knowledge is to be conveyed next presents itself. Let us commence with mineral substances. The chemist will here prepare the way for the naturalist by lessons upon the chemistry of air, water, fire, and the earth ; not delivered in elaborate lectures of the

received fashion, with the stock show experiments to be forgotten as soon as the lecture is over, but inculcated in familiar expositions of simple phenomena, illustrated by the example of common life—experiments that his pupils can learn to perform and explain on the spot. In a class of children, let it be the reward of attention and proficiency to be permitted to perform or repeat these simple experiments. By this system, not only will the class become intensely interested, but, by judicious teaching, cautions against dangers and dangerous practices of daily occurrence may be practically enforced, as well as simple lessons given in saving time and labor. The naturalist, in his hours of instruction, in the meantime will draw the attention of the pupils to the forms, colors, and other outward characters of common minerals, the simplest of mineral substances, and to their relative hardness and weight, giving the class the exact words which shall definitely express the characters observed, and restricting them to the use of these terms, and no others; then he will explain what are the less obvious characters of the mineral under consideration, such as its behavior when submitted to the action of fire or of an acid; he will state where it occurs in the earth, and in what manner; and, finally, he will arrive at its most essential features, its chemical composition, and its uses. At this point he will have to avail himself of the instructions of the chemist.

Let us take an example: the mineral quartz. The teacher exhibits some of the most familiar forms under which this the most common of minerals occurs. The pupils, under the guidance of the teacher, describe these forms, and their colors, lustre, etc., endeavoring to form an idea of their hardness and weight as compared with other substances submitted to them. Then the teacher explains, and, if desired, shows with the blowpipe, that it will not be affected, will not melt or break up at ordinary temperature and alone; also, that it will not be acted upon by acids; and by means of all these points he will show that the pupils may distinguish this mineral from others which in some one respect or other it may resemble. This mineral occurs as a component of many rocks—such as granite, and the predominant rock of New York Island—contributing to their hardness; it occurs, also,

in veins and in sand. It is composed of silica; and what silica is, and what its properties are, has been taught by the chemist. Finally, he comes to its uses, which depend in a lesser degree upon its hardness and indestructibility; but more largely as furnishing material for the manufacture of glass; and here, again, the naturalist has to refer to the chemist. Feldspar, giving rise to clay and suggestive of porcelain and earthenware; calcite, limestone, lime, mortar, and cement; mica, salt, the ores of the metals,—will all be treated in the same way, a portion of the required knowledge being drawn from the examples of the naturalist, and a portion from the experiments of the chemist.

The instruction on Plants should consist in teaching the pupils to designate and describe the parts of the plant, and the more common forms of these parts; as of the roots, the leaves, the flowers, etc. The terms used in these descriptions will enable the pupil to describe in an intelligible manner the multitudinous designs, ornaments, and patterns, resembling or in imitation of plant structures. The growth and development or the life of the plant should then be explained, and a sketch of the artificial classification of plants given; and mention should be made of the natural families that are remarkable as containing plants the most useful or deleterious to man: such as the Rose family, those including the cabbage, the parsnip, the potato, and especially the cereals. The familiar examples of the flower garden will afford good objects of instruction. The chemist should accompany this course by the chemistry of vegetable substances—such as starch, gum, sugar, etc., and its application in the simple operations of baking, brewing, distilling, sugar-making, dyeing, and so forth.

Animals, their more complex internal structure reflected by a vast multitude and variety of external forms, and the natural system of classifying this multitude, will call more upon the faculty of inductive reasoning in the pupil than upon the mere observant faculties; and thus this subject will form a great step in training the mind prepared by the previous simpler steps. The applications of the animal will be found in the domestic animals, in those supplying us with food and raiment, and in the multitude of foes to our cattle

and our plants. The chemistry of animal life will make us familiar with the nature of butter, cheese, etc., and may include the chemistry of cooking, leading us up to that involved in physiology and the laws of health.

Thus, the teachers in natural history and chemistry will advance simultaneously; and the study of the object and of its composition, and of its uses and the uses of the products prepared from it, will go hand in hand.

Step by step too with these, physical geography may be made to advance—from the history of the earth to the facts of the distribution of plants and animals upon its surface. We may remark, too, that the order of these studies will correspond with the most approved order of teaching drawing; the regular mathematical figures of the crystal succeeded by the irregular lines of the plant, and those in turn by the complex outlines of the animal.

Let it not be said that it will be impossible to find teachers for these subjects. There is nothing in the scheme above developed but what every educated man and woman should know; and from the best qualified of the public teachers a sufficient number could be selected to supply every school in the City. The chief difficulty, in our mind, would be in the selection of normal instructors for the teachers, who as yet are at the best but partially instructed. The professor of chemistry must be not merely a scientific chemist, but one familiar with the chemistry of common life; he must be a reliable teacher, for if his teachings are not scientifically exact, they will be positively detrimental to his pupils. At the same time, he must be able to treat his subject so popularly and in such language that his hearers will in turn understand how to make themselves intelligible to children. His illustrations must be taken from the parlor, the kitchen, and the workshop. His heart must be as much in the subject of education as in chemistry, and there must be a perfect accord between himself and instructor in natural history. Inferior teaching in any one branch will materially lessen the success of the entire scheme. The duty of the normal professors must lie very much in the selection of what to teach, and the wider their range of knowledge, and the deeper in every branch, the more able will they be to

select the best and the most useful elements to be taught. The time to be consumed in these studies need not be great ; a few hours a week, spread over the course of two or three years, will be sufficient if judiciously used to lay a foundation of knowledge that will serve the adult, whether in the field or the workshop, in the store, the kitchen or the household, more than all the other secular knowledge that can be taught them. To the economical man, who begrudges every extra item of education for fear of an extra charge upon the taxpayer, we confidently say that the higher the standard of education in the elements of natural science is made, especially with the great mass of the people, the lower will the taxes become. The amount of waste in the household, in the manufactory, in the farm-yard, in imposition and adulteration, in power, in labor, in disregard of sanitary conditions and the laws of health—all arises from the prevailing ignorance of natural knowledge—if prevented would supply many times the amount of wealth needed to educate every child in the land. Had the public but the rudiments of a knowledge of mineral substances, how many thousands of half-dollars would have been applied to a better purpose than visiting the Cardiff giant ; and how many gross humbugs are taxing the ignorant portions of the community far more heavily than any possible school tax ! If the man who knows nothing of science says, “ Why teach these things at all ? I have succeeded in the world without knowing anything of them,” we may point out to him thousands of men and women who bewail that they never had such instruction ; and suggest that if he has been so successful by sheer industry, he would not have been any the less so had his industry been directed by greater knowledge, by the wisdom of other experience besides his own. No one can appreciate the value of science who knows nothing of it. A man who knows what science is, alone recognizes how much his intellect has been elevated and expanded, his reasoning faculties developed, his practical usefulness to the community enhanced by his scientific attainments ; and that which he thus discerns in himself, he is also able to discern in others.

EDWARD C. H. DAY.

THE RIGHT TO EDUCATE.

WHOSE is the right to educate children? This may seem to some a singular question; but the discussion as to the provision to be made for the education of the children of the community is taking such a course as to make it necessary to go to the very root of the matter.

There are three claimants to this right to educate: the parents, the church, and the State. Has any one of these parties an exclusive right to control this important matter; and, if not, to what extent are their rights co-ordinate?

The right of the parents is first, in the order of nature and of time. Surely if any party may claim the right to direct the education of the children of a family, it is the parents, to whom they owe existence, by whom they are supported, whose love for them and interest in them are greater than that of others can be, and on whom God has plainly devolved the primary and principal responsibility of the case. The fact of parentage creates the closest and strongest of ties. The institution of the family ideally and chronologically precedes that of church and State, and its sanctity must in all respects be preserved, or the foundations of both civil and sacred society are gone. Every thoughtful student of history knows the unnatural folly of the Spartan idea, that children belong exclusively to the State, and are therefore to be taken from their parents and brought up together by the State. The somewhat similar conception of socialistic theorists, who would break down the family in favor of a "community" in which all the children should form a common group under the general care, has properly been rejected as fundamentally vicious. But equally unnatural and evil would it be for the church to override the family in any similar way, gathering the children into ecclesiastical nurseries or asylums, and trying to be a mother to them. The idea of "mother-church" was never meant to be so literally taken. We hold, then, that the rights of parents are first and paramount as to the education of their children, and that whatever is done by other parties in this direction, whether by church or State, must not invade parental respon-

sibility and liberty. The parents must be allowed to provide for their children the very best education which their opportunities will allow, free from civil or ecclesiastical dictation.

We acknowledge next a certain religious right in the church to educate her children. It would be strange, indeed, if the church had no rights in this respect, seeing that children are so large a part of her charge, and that the character of adults is usually so dependent upon influences brought to bear in childhood. There must be a responsibility of some kind in the church to see that the children of its members are not left in ignorance, and especially that they are trained in religious knowledge. But this obvious truth gives no countenance whatever to the extreme and absurd claim put forth by Romanists as to the jurisdiction of the church over the subject of education. Thus *The Tablet*, a Romish organ, says:

Education itself is the business of the spiritual society alone, and not of secular society. The instruction of children and youth is included in the Sacrament of Orders, and the State usurps the functions of the spiritual society when it turns educator. . . . The organization of the schools, their entire internal arrangement and management, the choice and regulation of studies, and the selection, appointment, and dismissal of teachers, belong exclusively to the spiritual authority.

It was the refusal of Austria longer to admit and carry out this claim of the Romish church, which in part produced the recent breach between the Pope and the Emperor of that country. The national schools were taken from under ecclesiastical control, and were placed under civil control; and the Pope declared this to be a violation of the rights of the church! But on what is such a monstrous claim based? On the two-fold fallacy that the church embraces all the families of the nation, and that whatever it is under moral obligation to promote and secure, it must itself do directly and exclusively. Plainly at the present day no branch of the Christian church includes all the children of the community; nor yet are all the children included within all the Christian denominations. Moreover, while the church in its various branches should throw its influence effectively to

secure the education of the children, it by no means follows that this must be done in church schools, any more than the duty of the church to secure industry in its members implies that all business must be carried on in ecclesiastical shops, stores, factories, and offices; or than that the duty of the church to promote justice among men implies its right to carry on civil government by church officers and ecclesiastical courts. The church must do many things, yea, most things, indirectly, using the agency of the family, of society, of the State, and of special voluntary organizations, contenting itself with being the animating spirit of all good, and with providing supplementary agencies. Thus it should promote general intelligence and education through the common schools of the State, through good private schools and colleges, and through family instruction, adding, for more direct religious training, Sunday schools and parochial and family visitation by the pastors. Against any exclusive management of the schools by the church stand the rights of the State, of the part of the community not in the church, and of parents in the church who may wish better advantages for their children than the church schools offer.

We come now to the right of the State to educate. How can this be denied? The State is a divine institution equally with the church, though for a different purpose. If, to preserve its existence, and to maintain its best character, the church has a certain implied and God-given right to educate its children, then for precisely similar reasons the State has a right to educate its children, equally implied and God-given. The family enters into both alike, and both must co-work with the parents to educate the children. No prosperous State, and least of all a republic, can be based on ignorance, which always debases mind and heart, and makes men the victims and the tools of tyrants. A republic, which is the self-rule of the people, demands a common school system as essential to its being, and still more to its well being. It was the very instinct of liberty which led our fathers to establish schools for universal education. Hence the State must make definite provision for educating all its children. But in doing this, it must remember that its work is co-ordinate with that of the family and the church, and it

must refrain from an infringement of their rights. Consequently the parent may demand that the common schools which he is taxed to support shall not have exercises which will educate his children in religious views contrary to those in which he feels conscientiously bound to train them; and, also, that the State shall not monopolize education, and forbid other schools which parents may wish to use at their own expense, at any stage of education. Similarly, each branch of the Christian church may properly insist that the State shall not introduce into the schools common to the whole people, methods of training which oppose the peculiar tenets and practices of that or any other distinct church. The State must act in good faith for the moral and intellectual objects common to all, leaving to supplemental parental and church agencies those special religious influences with reference to which citizens honestly differ. On such a basis alone can our common school system be perpetuated, and without that system republicanism will be perilled if not destroyed.—*The Advance*.

PRIMARY READING.

A GREAT variety of methods are used in teaching the first lessons in reading—the A B C method, the Word method, the Phonic method, and several modifications of these;—and yet many children still acquire the habit of reading in an unnatural monotonous manner, and without understanding what they read: which absurd manner does not exist in the ordinary conversation of the same children. May not this difference between the *reading* and the *conversation* of children be owing to the difference in the attention which they give in either case to the *thoughts* and to the *words* which represent them?

In conversation the thoughts receive chief attention; words are used simply as a means of communicating thoughts. In reading the case is quite different; owing to the habits usually acquired in consequence of the improper way in which the early lessons are taught, the forms and sounds of the

words are kept most prominently in mind, while the thoughts are treated as if they were of little importance.

In view of the great importance of having those whose duty it is to give instruction in the first lessons of reading, not only understand what is the proper starting point in their work and the true order of proceeding, but have some means of testing the correctness of their methods, attention is invited to the following :

FACTS TO BE OBSERVED IN TEACHING READING.

1. Reading aloud is gathering ideas from printed or written language, and speaking them so as to convey their true meaning to the listener.
2. Words as spoken, are learned by hearing only, and chiefly through their use in conversation. They may be called *sound-words*.
3. Words as printed and written are learned by seeing. These may be called *form-words*.
4. Sound-words may be separated into simple, or elementary sounds ; but these simple sounds do not symbolize ideas, nor the elements of ideas.
5. Form-words may be separated into simple elementary forms, or letters ; but these letters do not symbolize ideas, nor the elements of ideas.
6. Naturally, children learn by proceeding from the known to that which is akin in the unknown. This is the true order for teaching.
7. Sound-words, as used in conversation, constitute the *known* to the child just commencing its first lessons in reading. Form-words are the *unknown* to the beginner, and the kin to the sound-words, or known.
8. The first object of the instructor in reading should therefore be to teach the pupils to know by sight the forms of those words which are already known to the ear.
9. Children learn the concrete before the abstract ; the whole before its parts. Words are the *wholes* in the first lessons in reading, and should form the beginning of instruction. The analysis of words into sounds and letters belongs to a subsequent step.

EDUCATIONAL INTELLIGENCE.

BOSTON.—The following statistics of the schools of Boston are compiled from the report of the Superintendent for the half-year ending August 31. With a population of about 220,000, Boston has 42,624 children between five and fifteen years of age. For these the City provides four high schools, 28 grammar schools, 307 primary schools, and two schools for licensed minors, making 341 regular day schools; there were, besides, ten evening schools. For the high schools there were three buildings, with seats for 1,110 pupils. The number of grammar-school houses was 30, with seats for 20,946. The number of houses for primary schools owned by the City was 64, with seats for 17,300. A few other grammar and primary school divisions were taught in hired buildings, &c. The number of high-school teachers was 44—males, 27; females, 17: grammar-school teachers, 420—males, 59; females, 361: primary school teachers, 309—males, 2; females, 307: teachers in schools for licensed minors, 2. The number of teachers in evening schools was 46—males, 24; females, 15. The number of regular teachers was 793; special teachers, 28—total, 821. The average number of pupils belonging to the day schools of all grades during the year was 33,535; increase for the year, 650. The average daily attendance in the same schools was 31,126; increase for the year, 727. The average percent of attendance was 93.3. This attendance was distributed as follows: The average number belonging to the high schools was 1.064; average attendance, 602.5; average of pupils to a regular teacher, 29.5. The average number belonging to the grammar schools was 18,043; the average daily attendance, 16,963; percent of attendance, 93.9; average number of pupils to a regular teacher, 448; average daily attendance to a teacher, 42.1. The average number belonging to the primary schools was 14,384; average daily attendance, 13,101; percent of attendance, 90.4; average number of pupils to a regular teacher, 46.8; average daily attendance, 42.6. The evening schools had an enrolment of 1,871, with an average attendance of 717. The statistics of expenditure are for the year ending April 30, 1869. The whole amount of salaries of teachers was \$719,628; increase for the year, \$171,012. The current expenses of the day schools, including salaries of officers, amounted to \$982,677. The amount expended for buildings and lots was \$346,610; for evening schools, \$5,333. The total expenditure for school purposes was \$1,334,621.

ANOTHER school question has just presented itself. This time it is the question of allowing colored children to attend the public schools. The case which brings up the question is that of the daughter of the Rev. Sella Martin, of Washington. A colored school-trustee gave her a card of admission. She and her mother, who took her to school, are so nearly white that the child was admitted without being suspected of having negro blood in her veins. When this fact was discovered she was sent home, until the general question involved might be decided by the Board of Trustees. There then we have a test case, and the school trustees of the city of Washington have a chance to show what stuff they are made of. The fact that the person in question is nearly white makes no difference. Those who despise "niggers," hate those who have the least taint just as much as those who are thoroughly black; and those who form their estimate of people in this world by other things than the color of their skin must understand that, in fighting for the rights of one who is nearly white, they are winning the cause of one who is entirely black. The prejudice against colored people is astonishingly strong in people who grew up under the old order of things. The more intelligent are fast escaping from it; the deliverance in this latitude is already quite complete; but the prejudice is still strong in some circles, and, of course, in the South. How much strength it still has on the parallel of Washington, we shall now have a chance to see. At any rate, it is gratifying to believe that it is a lost cause. It is no longer a matter for argument. We need only let time work out the result. In this case the decision may be adverse; but all that is needed is patience. Mr. Martin, the father of the child, is a man whom all who know him respect, and competent judges declare that he is among the very best preachers in the country, and that too, when judged by the severe standards of highly educated men. It is impossible that any prejudice which stands in the way of the education of the daughter of such a man can endure long,—*The Living Church*.

AMONG the most significant of the recent educational movements in England, is the decision to throw open the doors of the University of Oxford to "Nonconformists." The thing is not done squarely, however, by opening any and all of the present colleges; but by establishing new halls, lodging-houses and tutorships, where students may be received whether they subscribe or not. It opens the circle of purely Anglican colleges in that famous university to the introduction of Presbyterian, Methodist, or Independent foundations.

RUSSIA.—Whatever failings there may be in providing education for the lower classes in Russia, no pains have been spared for the higher education, and there is an abundance of gymnasiums, high schools, and special academies to meet the demands of students in every art and science. The Government has dealt very liberally with them all in providing them with fine buildings, good libraries, large gardens, apparatus, and in paying liberally all the professors and teachers. The faults which may exist are not owing to any lack of money expenditure. Leaving out of view the agricultural, art, technological, and engineering academies, we will consider for a moment the universities, of which there now exist in Russia nine: at St. Petersburg, Moscow, Kazan, Kiev, Kharkov, Odessa, Dorpat, Helsingfors, and the one just established, or rather reopened, at Warsaw. At Helsingfors the instruction is in Swedish and Finnish; Dorpat, until now in German, except Russian history; and in all the others in Russian; at Warsaw Polish history and literature may be taught in Polish, and the present Polish professors (it was formerly a high school) will be retained, though required to lecture in Russian, and to take the degree of Doctor within a year at some Russian university. It is said that the professors are very glad to do this, to prevent any influence over the Polish youth falling into Russian hands. Kazan has always been celebrated for the Oriental languages, though that special faculty is now abolished; Kharkov and Kiev, for medicine; Dorpat, for astronomy; St. Petersburg, for mathematics; and Moscow, for the natural sciences. The university of Moscow is by far the oldest of the purely Russian universities, having been founded in 1755 by the Empress Elizabeth. Besides the botanic garden and the usual museums, it has very rich anatomical and zoological collections and a library of 160,000 volumes. There is a hospital attached to the medical faculty, where 1,400 patients are annually received. There are 75 professors, ordinary and extraordinary, docents and lecturers, besides the secretaries and inspectors, and about 1,600 students attend the courses. The fees are 100 rubles yearly for each student, except those who are on foundations, which are numerous, as it is very customary in Russia for private citizens to found scholarships in the schools and universities in commemoration of some public event. The Government contributes some 400,000 rubles a year to the expenses of this university, the buildings of which are large and convenient, in the heart of Moscow, just in face of the Kremlin. Kazan and Kharkov Universities were founded in 1804 and 1805, and have each from 500 to 600 students. The library at Kazan contains about 60,000 volumes, and is par-

ticularly rich in Oriental manuscripts, the most of them inedited. Owing to the exertions of one of the professors, who is an Englishman, the English section is quite full. The mineralogical collection is particularly good. At Kharkov there is a very fine museum of coins and medals, and an art collection, with some valuable specimens of the old masters, the only one attached to a Russian university. There is a large and beautiful botanic garden, and to the medical department there is joined a lying-in hospital. The professor of obstetrics, Dr. Lazarevitch, has a European reputation, and is even a member of some American medical societies. The University of St. Petersburg was established in 1819, has some 63,000 volumes in the library, and about 1,000 students. The University of St. Vladimir, at Kiev, was founded in 1833, and is now very flourishing, with about 500 students. Besides the large botanic garden, there is a fine zoological cabinet, very rich in the birds and animals of South Russia, a hospital, and a library of 107,000 volumes. The University of New Russia, at Odessa, was created in 1865 out of the Lyceum Richelieu. The University of Dorpat, which is very much like a German university, and where the student-life is exactly the same as in Germany, was founded in 1632 by Gustavus Adolphus as a Swedish university, and in 1710 took refuge from the Russian armies in Sweden. It was brought back only in 1802 by Alexander I. The botanical garden is one of the most complete in Europe, and the observatory and the labors of Professor Struve have given the mathematical faculty a world-wide celebrity.

In all of the universities there are four faculties, usually divided into the historico-philological, the physico-mathematical, the legal, and the medical. The physico-mathematical faculty is usually divided into two sections—pure and applied mathematics, and the natural sciences; and at St. Petersburg there is in the law faculty a section of administrative sciences, for the special benefit of those who wish to enter the civil and diplomatic service. In St. Petersburg, also, a faculty of the Oriental languages takes the place of the medical faculty—the medical academy there being a separate institution. The course is four years, at the end of which, after passing a rigid examination, the student receives the degree of *Candidate*. A year or two after, on the presentation of a thesis, which the candidate is required to defend publicly, the degree of *Magister* is conferred. The *Doctorate* of literature, law, philosophy, philology, &c., is given to graduates who have prepared some carefully written monograph, or treatise, but no examination is required. Honorary degrees are very rarely conferred.—*The Nation*.

CURRENT PUBLICATIONS.

PROFESSOR C. P. EVANS AS A GERMAN AUTHOR.

IT is suggestive of much reflection, by no means damaging to the intelligence of the American people, that for some time past an uncommon zeal for and interest in German literature has sprung up in this country. American youth are flocking to the German fatherland to "drink the waters at their source," and to disseminate, after their return a knowledge which they cherish, and which has opened to them a new world of thought. Soon, in preference to those American citizens that have the misfortune to speak the German language vernacularly, they are promoted to the chairs of German Literature in our institutions of learning; and many devote their leisure to trying their strength as authors of works connected with German literature. Some, with more or less success, are writing German Grammars, some are preparing Readers, others are translating German authors into English. But none heretofore—at least to our knowledge—ever attempted to appear as a German *author* before the American public. This task, indeed, is of such formidable difficulty that Americans, however thoroughly imbued with Teutonic lore, might well be discouraged from undertaking it. We cannot dwell here on the reasons why this task is more difficult in the German than in any other language, but the fact is that but a very few non-Germans have attempted to write books in German, and that even among these few but one or two ever succeeded in acquiring a tolerable style. In view of these difficulties our surprise, and that of the public in general, was not a little aroused by the announcement of a German work on German literature from the pen of Prof. Evans, of the University of Michigan.¹

So far the book has met with a very favorable reception by the press. The reviewer of the *Nation* bestows on the author the praise of a graceful style and superior treat-

¹ *Abriss der deutschen Literatur-Geschichte von Dr. C. P. Evans*, New York: Leypoldt & Holt, 1869.

ment of the subject. The encomiums of others are unusually lavish. These praises may or may not be deserved; this depends mainly on the question whether *Prof. Evans has written the book himself*. That rather important point ought to be settled before entering on a criticism of the work. It is true, we have for an affirmative answer to this question Prof. Evans's own word on the title page.¹ Still the public may perhaps be inclined to differ from him, after having examined the following facts.

At the very first reading of Prof. Evans's "*Abriss*" we saw by its style and the whole treatment of the subject, that a very considerable part of it, if not all, must have been originally delivered as a lecture at some German University by some German Professor. By our subsequent inquiries it appeared that Prof. Evans had heard in the winter of 1859-60, at the University of Göttingen, a series of private lectures on the history of German literature, delivered by Prof. W. Müller.² There were five other hearers besides Mr. Evans. Of the notes taken by these young men, probably only *one* copy exists besides that written by Mr. Evans. Had this copy, written by *Mr. A. Wiemann*, been lost like the others, there would be no proof now to convict Prof. Evans of plagiarism. But the copy has been preserved, and is, with Prof. Müller's certificate of its authenticity, in our hands. Mr. Wiemann, however, took complete notes only of about the first fourth of the lectures. The last three-fourths of his notes show nothing but a delineation of the Professor's *scheme*. A comparison of Prof. Evans's book with Mr. Wiemann's notes, shows that both agree with each other, as two persons will agree who are independently taking notes of an extempore lecture; for such, according to our information, were Prof. Müller's. We beg now the reader to compare the following passages which we take from the very beginning of Prof. Evans's *Abriss* (p. 9), omitting the few introductory remarks, which Mr. Wiemann did not take down.

¹ He has waived writing a preface, in which he might have defined his position without equivocation.

² *Prof. W. Müller*, of the University of Göttingen, is one of the best writers of our time on the history of German literature. His treatises, especially on ancient literature, have secured to him a well deserved fame.

PROF. EVANS.

Die Poesie ist ein Gemeingut aller Völker eine organische und nothwendige Aeusserung ihres *Denkens*.

(Wanting.)

Wir finden kein Volk ohne Poesie, besonders in der Form kunstloser Lieder, die sich an den Gottesdienst knüpfen.

Diese religiösen Lieder sind in der Regel die ältesten *Nachlässe* des menschlichen Geistes.

Der Naturmensch fühlt sich gedrungen, die verschiedenen Stimmungen und Empfindungen, die die Wechselfälle des Lebens erzeugen, durch Gesang auszu—drücken.

Daher singt er beim *Anfange* einer Schlacht, bei fröhlichen Gelagen; Ernten, Trauungen und Begräbnisse werden *unter Gesang vollzogen*.

Das Volkslied ist die ursprünglichste und nachhaltigste Art der Poesie.

Es trennt sich von der allmählich entstandenen Kunstpoesie,

und beschränkt sich endlich auf die niedern Stände der Nation.

Das Volkslied gehört eigentlich keiner der drei Gattungen der epischen, lyrischen oder dramatischen Poesie an.

Als die Erzählungen (*sic*) grosser, in Sagen fortgeplanter Begebenheiten trägt es vorzugsweise einen epischen Character;

es hat einen lyrischen Character, weil es

MR. A. WIEMANN.

Die Poesie ist ein Gemeingut aller Völker, eine organische und nothwendige Aeusserung ihres *Lebens*.

Dieser Satz zuerst von Lessing ausgesprochen, dann von Herder weiter ausgeführt.

Volkslieder, an den religiösen Kultus anknüpfend, finden wir selbst bei den ungebildetsten Völkern.

Religiöse Gedichte sind die ältesten literarischen *Ueberbleibsel*.

(Wanting.)

Dann bei *Aufregung* beim Schlacht-Akte; auch wurden hervorstechende Begebenheiten in sagenhaften Liedern *besungen*.

Das Volkslied ist die älteste Dichtung, indem es immer fort-dauert.

Dasselbe trennt sich allmählich von der Kunstpoesie, die sich durch strengere Formen unter scheidet.

Es beschränkt sich allmählich auf die niedern Stände der Nation.

Es ist die Frage ob das Volkslied der epischen, lyrischen oder dramatischen Gattung der Poesie angehört.

Das Volkslied hat einen epischen Character (mehr objectivals subjectiv) indem es * * (*wanting*); indem es die Begebenheiten nicht erzählt, sondern nur in ihren Hauptmomenten andeutet, enthält es eine lyrische Färbung (für

für Gesang gedichtet ist; und durch Gespräch und Handlung wird es dramatisch.

Folglich enthält es den Keim zu diesen drei Hauptdichtungsarten, die sich in einer *geordneten* Reihenfolge daraus entwickeln.

Erstens das *Epos*, zweitens die Lyrik, und zuletzt das Drama. Das Volkslied ist die gemeinsame Mutter dieser Gattungen.

den Gesang gedichtet); durch die lebendige Wechselrede erhält es einen dramatischen Anstrich.

Im Volksliede liegt der Keim zu allen drei Gattungen, die in einer *organischen* Reihe aufeinander folgen.

Also erstens die *Epik*, zweitens die Lyrik, drittens die Dramatik. Das Volkslied ist die Mutter dieser drei.

Very much in the same way Mr. Wiemann's notes and Prof. Evans's book correspond to about page 60 of the latter. Sometimes the one, sometimes the other of the two, omits a sentence of Prof. Müller's, but nobody can fail to see that Prof. Evans's book is a mere copy of his own notes. From page 60 Mr. Wiemann's notes gradually grow briefer, and it appears that he has been writing only the *skeleton* of Prof. Müller's lectures. But even this skeleton may be followed up all through Prof. Evans's book to the very end: in the arrangement of the periods and their subdivisions, and in the scheme of the whole, there is a complete identity, although Mr. Wiemann's notes in the last pages are so fragmentary, that they can hardly serve for a comparison. The reader will have noticed, that even in the few passages given above, Prof. Evans has not unfrequently spoiled his original. The following passages, taken at random, go to show how frequently Mr. Evans misunderstood his Professor, changing truth into error, and this he failed to see even when preparing his notes for the press.

PROF. EVANS.

Während die Lyrik verschiedene *individualisirende* Gefühle ausdrückt, und einer *freieren* Form bedarf, p. 11.

Wenn das Lehrgedicht sich auf einen sittlichen oder gesellschaftlichen Mangel bezieht, so entsteht die Satire,¹ p. 13.

MR. WIEMANN.

Während die Lyrik für den Ausdruck *individueller* Gefühle mannichfacherer Formen bedarf.

Wenn das Lehrgedicht sich auf die Gegenwart, und speciell auf die sittlichen oder geselligen Gebrechen *der Gegenwart* bezieht, entsteht die Satire.

¹ Here he has omitted the most essential part in the definition of "Satire," namely that it must refer to the *present* time.

Auch die romantische Schule *erregte* grosses *Interesse* für die altdeutsche Dichtung, p. 15.

(Gervinus) ist für die Literatur des 17. Jahrhunderts am meisten *zuverlässig*, p. 15.

Koberstein's Grundriss, etc., (eben vollendet), p. 16.

Die *Anmerkungen* sind ausgedehnter und reichhaltiger als der Text, p. 16.

Sehr brauchbar für das Gebiet des *Altsächsischen*, Skandinavischen und *Niederländischen*, p. 17.

Aber erst im 15. Jahrhundert war der Sieg des *Christenthums* (in Deutschland) vollständig,¹ p. 23.

Selbst die Aebte und Mönche im 13. Jahrhundert konnten weder lesen noch schreiben,² p. 36.

Die provenzalische Dichtung wirkte auf die deutsche nur *unmittelbar*,³ p. 40.

Erst die romantische Schule *regt* ein eifrigeres und gründlicheres *Studium* der älteren deutschen Literaturgeschichte *an*.

(Gervinus) ist für die Literatur des 19. Jahrhunderts am *besten*.

Koberstein's Grundriss (die 4. Auflage eben vollendet).

In den *Citaten* sind Auszüge aus guten Quellen, die oft reichhaltiger sind als der Text.

Sehr brauchbar für das Gebiet des *Angelsächsischen*, Skandinavischen und *Mittelniederländischen*.

Aber der Sieg der christlich römischen *Bildung* war nicht vollständig; sie ging später ganz wieder verloren, bis sie erst im 15. Jahrhundert wiederbelebt wurde.

In *St. Gallen* konnte im Jahre 1291 die ganze Geistlichkeit, den Abt nicht ausgenommen, weder lesen noch schreiben.

Die provençalische Dichtung wirkte auf die deutsche nur *mittelbar*.

Such misapprehensions are multiplied as the work, or rather the lecture, proceeds towards the end. Here Prof. Müller was evidently pinched by want of time (a thing by no means uncommon with German Professors), and hurrying over his subjects was speaking more quickly and using briefer language, so that the taking of notes became rather difficult. Compare for instance the following characteristic of Goethe's (Mr. Evans persistently says *Göthen's*) Faust (p. 187), which as we read it in Mr. Evans's book is a startling combination of errors and incongruities, though even in its present

¹ Here Mr. Evans tells the startled reader, that the Germans in the 14th century were yet partially heathens, and fully converted only in the 15th. But Prof. Müller speaks only of Christian-Roman culture, and said that it was *regenerated* in the 15th century.

² And yet on the very next page he says, that *only* the clergy and women knew the art of writing and reading in that period. It appears that Prof. Evans has transferred to *all* monks what Prof. Müller said only of the monks in a single cloister.

³ That this is no error of print appears from the marginal.

wretched state the traces of an admirable original may be discovered in the ruins :¹

"The piece (Faust) shows how an honest man may be alienated from his striving after the good (*von seinem Streben nach dem Guten abgebracht*), but not perish as long as this sincere striving remains in him.² Faust and Mephistopheles represent the whole man, the former from the good, the latter from the bad side. In the second³ part Goethe had intended to elevate (*heben*) Faust by bringing him in connection with the good, and making him thus worthy of being saved. "Faust sleeps"⁴ is a symbol of repose and reflection after the storm and pressure (*Sturm und Drang*) of life. Masquerade (*Mummenschanz*) is an image of social life; Helena the beauty of classic antiquity; she disappears, *i. e.* this beauty cannot be obtained by storm and pressure. Faust acquires the form of Phorkyas⁵ (Mr. Evans spells her *Phorkias*), who is a symbol of the ugly. Homunculus is the fantastic striving after science that attains nothing. The third act in the second part⁶ is an allegory in which the ancient art-idea (*Kunstanschauung des Alterthums*) is represented *also* in regard to modern culture; it also contains a beautiful monument erected to Byron. At the end Helena disappears, but leaves her cloak, etc., to Faust,⁷ which means evidently how modern art takes hold of the ancient. Act iv. does not⁸ represent war and the mere political life, but the dark part in social life (*Die Schattenseite des socialen Lebens*). Act v. describes its bright

¹ Mr. Wiemann has entirely omitted this portion of the lecture in his copy.

² The reader will notice that this sentence contains a striking incongruity. For nobody can be alienated or diverted from his striving, and still remain in it. Prof. Müller probably said: how a man with honest striving after the good may be alienated from the good, and still be saved, as long as this striving remains in him.

³ Prof. Müller has evidently said: In the *first* part. For the *good* principle in Faust is undoubtedly Margaret (*Gretchen*), who appears in the first part only. We have not the slightest doubt that the preceding sentence is mutilated, and was originally delivered thus: "Faust represents the *whole* man, Mephistopheles represents *man* from the *bad*, and Margaret from the *good* side." Thus only the next sentence yields a correct sense, which probably was delivered thus: "In the *first* part, Goethe had intended to elevate Faust, by bringing him in contact with *Margaret* the good principle."

⁴ Here is evidently a gap. For here begins the second part, the relation of which to *the first* has evidently been explained with some care by the Professor, this being the most essential point in the whole of Faust.

⁵ This is a strange error. Not Faust but Mephisto acquires the form of Phorkyas.

⁶ Here is another gap; for Prof. Müller has, before coming to the 3d act, most unquestionably considered the "*classic Walpurgisnacht*" of the second. The word *also* (*is represented also in regard, etc.*), following below, which in Mr. Evans's sentence has no sense, shows clearly that Prof. M. said: *The classic Walpurgisnacht of the second act represents ancient art by itself and in opposition to the modern, but in the third act, which forms the second part of this allegory, ancient art is represented also in its relation to, and connection with, the modern.*

⁷ Here again Mr. Evans has misunderstood the Professor. For it is not Helena that leaves her cloak and her *etc's* behind, but Euphorion, her son; nor is Faust the person who receives it, but Phorkyas-Mephisto; Faust on the contrary disappears *with* Helena.

⁸ Here the Professor evidently said the contrary: The fourth act *does* represent war, the representation of a grand battle going on almost through the whole act.

part, and the noble satisfaction produced¹ by the striving of a good man."

Schiller is thus compared with Goethe :

Schiller is an idealistic nature ; he begins with (*er geht aus von*) ideas, and then tries to find connecting points for them in the real world. But Goethe is framed more realistically (*ist mehr realistisch angelegt*), and he begins with his experience (*von dem wirklich Erlebten*). (See Herder's Nachlass, p. 193).² Goethe is more the poet of sentiment and heart (*Empfindung und Gemüth*) ; Schiller the poet of character and action (*Gesinnung und freie That*).

In this parallel of Goethe and Schiller the main points are evidently wanting ; for it is inexplicable, how from his premise that Goethe begins with "facts" and is "realistic," he could arrive at the conclusion that Goethe, in opposition to "idealistic" Schiller, is the poet of sentiment and heart. To a similar omission we must refer the strange assertion (p. 190), that the chief interest for us in Schiller's aesthetic treatises (letters on aesthetic education, on *naive und sentimentale*³ Dichtung) is that they prepare us for the study of his great historic dramas. Page 186, he says that Goethe in his *Wahlverwandtschaften* paved the transition from the "*Mährchen*" to the "novel," a series of distinct, plain images, where Mr. Evans obviously not only corrupted the Professor's words, but omitted the better part of them. On page 181 he states that Schiller formed the acquaintance of the main representatives of the *Genie Periode*,⁴ namely, Rousseau, Ossian, Goethe, Gerstenberg, Schubart, etc., from which we must gather the startling intelligence that Goethe and Ossian were contemporaries. The Professor unquestionably said: "Goethe, Gerstenberg, Schubarth, and the works of Rousseau and Ossian, which were the oracles of the *Genie Periode*."

That Mr. Evans indeed did not study German literature from its sources, but only in the lecture-room, and that his knowledge does not extend beyond the latter, sufficiently

¹ Mr. Evans says, *das befriedigungs-schaffende Streben*, showing that the formation of compound adjectives is not his forte.

² Nobody would guess that by "*Herder's Nachlass*" a treatise of *Düntzer* is meant bearing the title "*Aus Herder's Nachlass*."

³ Schiller says "*sentimentalische*," not *sentimentale* Dichtung, which is something widely different.

⁴ The *Genie-Periode* lasted about twenty or thirty years in the second half of last century.

appears by the extracts from his review of Goethe's Faust, which we have presented to the reader. These extracts prove with great evidence, that he cannot have read Faust; for nobody that ever read this drama will make himself guilty of a whole series of such palpable misstatements; he will not do this even in common conversation, much less when he attempts to write a history of German literature, and assumes the part of a critic.¹ Another proof of the fact that Mr. Evans has not read the authors whom he attempts to criticise, may be found in his inaccurate quotations, by which he not seldom utterly spoils the sense of the quoted passage. Page 186, he makes Merck say to Goethe in regard to Clavigo, "*er sollte solchen Quark nicht wieder schreiben, das könnten Andere thun,*" while Merck wrote to Goethe: "*Solchen Quark musst du mir künftig nicht mehr schreiben. Das können die Andern auch,*" which means something quite different from what Mr. Evans has put in Merck's mouth. Page 177 he quotes a passage from Goethe's "*Diner zu Koblenz,*" thus:

*Propheten rechts, Propheten links,
Das Weltkind in der Mitte—*

While there was only one prophet at the right, and one on the left, and the original reads:

*Prophete rechts, Prophete links,
Das Weltkind in der Mitten.*

All this proves that he quotes his passages as he had misunderstood them in the Professor's room, without even going to the trouble of consulting the authors themselves.² It appears, however, that sometimes Mr. Evans has indeed changed the words of Prof. Müller on purpose. But he was by no means always felicitous in the change. Prof. Müller, speaking of the well known lyric poet, bearing his own name (Wilhelm

¹ In view of these facts it is rather amusing to read how Mr. Evans frequently sets himself up as an arbiter between the very greatest literary authorities; thus for instance, between Grimm and Gervinus p. 60: "Grimm is too severe when he characterizes the piece as *gleichformige Geistlosigkeit*; Gervinus on the other hand places its value too high." If it was not for the fact that Mr. Wiemann's notes contain exactly the same passage, we should not attach too much value to this verdict.

² Thus he says, p. 186, that Goethe found the historic basis of his *Hermann und Dorothea* in a history of the "*erzwungene* emigration of Lutherans from Salzburg," which is a nonsense—Prof. Müller having used the word "*erzwungene*."

Müller), must have said, that on account of the limited "*time*" he could not enter on the criticism of his poems—or something to that effect. It would evidently not do for Prof. Evans to copy this remark *verbatim*. Therefore he roundly changed the word "time" into "space," saying (p. 212) that he could not consider the merits of Wilhelm Müller, owing to the limited *space*. Now, we take it for granted that in his original notes we shall find the word "time," for we cannot understand how his "space" could be so limited that six or eight lines should make a difference; and indeed if so many lines had been wanting, he might with far greater propriety have left out whole pages of utterly indifferent matter, where he criticizes with great length the obscurest and most unimportant of writers. Or, when he was really pinched by space, why did he mention Wilhelm Müller at all, seeing that far more important and celebrated poets and writers, *e. g.* *Emanuel Geibel, Alexander and Wilhelm von Humboldt, Friedrich Jacobs, Mommsen, Solger*, and a host of others are none of them mentioned by name?¹

We have still to consider the question, whether the book that bears Prof. Evans's name may not after all and in spite of plagiarism (or perhaps because of it) prove acceptable and useful to the American student. We shall discuss this point in another article.

GUSTAVUS FISCHER.

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¹ In his *last* lecture Prof. Müller had to consider the so-called *political* school of modern poets (Freiligrath, Hoffmann, Prutz, Herwegh, Kinkel), but he only had time to give a list of their names. He unquestionably excused this with a few remarks. Mr. Evans gives them likewise the cold shoulder, adding: *An dieser Stelle ist es unmöglich sie zu besprechen* (at this place it is impossible to speak of them). Why, that was just the very place to enter upon a discussion of their merits. Just these poets, the singers and some of them the martyrs of liberty, the favorite poets of Longfellow are for American readers of the most intense interest. This fact could not have escaped Mr. Evans. The conclusions which we must draw from this omission are self-evident.

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HINTS ON THE STUDY AND TEACHING OF NATURAL HISTORY.

"Matter is the language in which God has expressed His thoughts."—Prof. BENJ. PIERCE.

"Naturalists are only the translators of God's thoughts out of Nature."—AGASSIZ.

HOW many of the students who enter our colleges could tell you to what branch of the Animal Kingdom they, as *men*, belong? Perhaps, we might ask another question: How many of those who graduate from our colleges and universities are there who could give a correct definition of an articulate?

A knowledge of Natural History is not yet recognized as one of the essentials of an education. This science is taught in but few of our schools, and even in these, for the great part, it is only slurred over. In most of our colleges it is shamefully neglected, and even in the leading universities, where the professors of zoology are accomplished naturalists, so little time is devoted to the science in the curriculum that the student can obtain only a smattering of it. There are several reasons for this neglect. In the first place, we can hardly hope to have a science held in general esteem which is not generally known. Among the professors in any one of our universities only a very few can be found who know anything at all of natural history. But they have all studied Latin and mathematics, and the majority would de-

mand that these should occupy a prominent position in the collegiate course, not only for the sake of the training they give, but for the use which the student makes of them in after-life.

We cannot very much wonder that a science so generally neglected, even among the liberally educated, as natural history is, should claim so little attention in our school and collegiate courses of study. But it is not all mere neglect. There seems to be an impression that natural history does not offer so much scope for mind-discipline as the classics, or mathematics, or philosophy. This is a misconception, and it arises almost entirely from the superficial way in which the science is taught; and, more especially, from the character of the text-books used. Those treatises which consist of little more than a bare enumeration of the divisions of the animal kingdom, together with the scantiest possible information concerning their structural relations, the mode of growth of animals, their sequence in time, formal distribution, etc., etc., are not worthy of the name of natural histories. One may go through them from beginning to end, and not obtain the faintest idea of the real scope and spirit of the science. These works are, it is true, better than nothing; and it is preferable that we should have poor natural history teaching than none; but there are in all the country only a few hundreds of students who are really receiving any mind-training from the study of natural history.

Natural history is really as broad and deep and comprehensive a science as mathematics, and the true naturalist teacher can give a student as severe a course in zoology as can be given in any other science; and there is no university-educated naturalist but will agree with me. But the science must be taught properly, and the student must give the same amount of time and hard work to it that he would give to his Latin or his mathematics. The day is not far distant when natural history, geology, and botany will claim a fair and proportional share of attention from the student. A great progress has been made within the last few years, and the number of schools in which natural history is taught, more or less thoroughly, is rapidly increasing. The great difficulty at present is the want of teachers,

and the want of proper text-books. The latter are either too scientific and cumbrous or they are so popular as to fail entirely in giving the spirit of the science they pretend to teach. My object in this paper is to give a few hints to teachers as to the proper way of studying and teaching natural history, so that they may be able to prepare themselves to introduce it into their schools, or to teach it more thoroughly if already introduced.

Natural history, or more properly zoology, treats of animals—their structure, classification, growth, homological relationship, the order in which they have succeeded one another upon earth, their distribution, habits, etc., etc. In the study of zoology, one needs in the outset to gain a clear idea of the general structure of animals, so that he may know what an animal is. The best work to use for this purpose is Agassiz and Goulds' "*Principles of Zoology*." Do not trust to books alone, for they will never make you a naturalist, or fit you to teach natural history. Nature is her own text-book; study her. Collect all the animals you can lay your hands on, and examine them for yourself; for it is only in this way that you can learn to be an observer. Never mind if at first you know neither the name of the animal nor of its various parts. Names, as I shall presently have occasion to show, are of very slight importance.

When you have a general idea of the structure of animals, you will be ready to take up the study of their classification.

The arrangement of animals into branches, classes, species, etc., is not, or rather ought not be, something arbitrary. The student must recognize the fact that animals, like everything else in nature, are the expression in matter-language of thought, of the Creator's plans. These thoughts, these plans, have a perfect arrangement—an arrangement which can be translated out of nature; and so the classification of animals, to be natural, must be found in nature, and not be arbitrary; but since our knowledge of God's works is imperfect, our classification must be to a considerable extent arbitrary—a mere matter of convenience, to be changed as we come to know animals better. The student then must not be surprised that all naturalists do not teach the same classification. So long as the language of nature is imper-

fectly known, there must be a diversity of translation of parts of her volume, and men will differ in their interpretation of her meaning. And it is best that it should be so; for thus, through the war of opinions, errors are exposed and the progress of truth is the more rapid.

In striving to obtain a connected idea of the classification of animals and their structural relationships, the student should begin with the general and proceed to the special, taking care not to be tangled among details in the beginning.

The first thing to be done is to study the broad plans which characterize the four great branches of the animal kingdom. After that, he must take up the classes, and then the orders. This is about as far as it will be wise for him to attempt to go with his general studies. The families are so numerous that it is hopeless to master them, and not even Agassiz could give the genera, while no one pretends to know the species, of more than a few small orders at the farthest. If one can correctly refer any animal he meets to its proper order, and can state the general structure and homologies of the order, and so on, he will do very well. So far as genera and species are concerned, he had better confine himself to those of one order, for a time at least.

The best work that the student can use is Professor Agassiz's masterly "*Essay on Classification*;" I know of nothing like it for depth and soul. Then, there is his little "*Methods of Study in Natural History*," which will repay frequent reading. One of the best works on Zoology is that of Milne-Edwards, published in French and English; but if the student reads French, I should advise him by all means not to get the translation. Tenney's Natural History may be used as a work of reference.

Cuvier showed that animals divided themselves naturally into four great primary groups, which he called branches, as follows:

	VERTEBRATES,	
MOLLUSKS,		ARTICULATES,
	RADIATES,	

these branches being each characterized by an entirely different plan of structure. Naturalists have long been puz-

zled by certain animals, such as the sponges, many of the *animalculæ*, etc., which do not appear to belong to any one of the above branches, and many are beginning to suspect that there is a fifth branch, characterized by the want of a distinct plan; these have been called the *Protozoa*, or systemless animals.

I advise all students to begin with the study of the *Radiates*, for their plan is exceedingly simple and more easily studied than that of the other branches.

Radiates, such as starfishes, sea urchins, jelly fishes, etc., are animals with more than two sides. Their bodies are composed of a larger or smaller number of segments, which are exactly alike, and are symmetrically arranged around a longitudinal axis, just as the "quarters" of an orange are arranged about the axis of the fruit. It makes no difference how much radiates may differ among themselves, they all have bodies constructed on this plan, the differences being in the mode of expression of the plan, the details of execution, and the general finishing up, so to speak, of the animal; and it is one of the most interesting of studies to observe how the same idea finds a different expression in different radiates, or in other words, to study the *homologics* of these animals. If you live by the sea shore you can easily obtain a sea-urchin and a starfish and study their structure. If you do not live near the sea, apply to some naturalist, who will gladly help you obtain them.

Now take another branch, the *articulates* for instance, and compare together a lobster and a starfish. They are both animals, but how differently they are constructed! The lobster has only two sides, and all its appendages and internal organs are arranged with reference to them, but the body is divided into rings, or segments jointed together. Its stomach and digestive cavity form a tube running through the middle of the body from end to end; the heart is another tube lying above the stomach, while the grand trunk of the nervous system runs beneath the stomach from one end of the body to the other. Even the legs and other appendages are jointed. It has no internal skeleton, and all the hard parts are on the outside. The plan on which it is built is that of *articulation*. Now compare the lobster with a crab, a worm, and an

insect, and observe how in these so differently appearing animals the same simple idea is expressed.

Then turn to the branch of *mollusks*. Examine a fresh water clam or an oyster. It resembles the lobster in that it has a right and left side to which the shells are applied, but it has no trace of an articulate arrangement of its parts. Examine your specimen carefully and you will find that its body is composed of a fleshy sack containing the organs of the body, which are very differently arranged from what they are in either the *radiates* or *vertebrates*. It is an animal built on the plan of *saccation*. A slug, or still less, a snail with its spiral shell, bears at first sight no resemblance to an oyster, yet it is built on the same plan, and so is the cuttle fish, together with the other less well-known saccates, called *ascidians* and *brachiopods* and *polyzoans*.

The vertebrate animals, or those with a back bone, such as fishes and reptiles, birds, mammals, etc., widely as they may differ from one another in general appearance, are all nevertheless constructed on the same plan, but it is wholly distinct from the three already described. It is not the fact that all these animals have a back bone that constitutes them vertebrates, for some members of the branch have not a bone in their bodies. The vertebrate plan is a little difficult to understand, but I will try to explain it: All fishes and reptiles, frogs and toads, birds, mammals and man agree in the following features. From one end of the body to the other there runs an axis, which in some of the lowest members of the branch forms a soft cord, but in the great proportion of vertebrates however it consists of a row of short bones, called *vertebræ*, jointed together and forming a spine or back bone. Above this axis there runs in like manner from one end of the body to the other, a cavity containing a spinal cord, which in the front end of the body swells into a brain. This forms the grand centre and main trunk of the nervous system of the animal. This cavity contains nothing else. In most vertebrates this cavity is enclosed and protected by series of bony arches, which spring from the separate bones of which the spine is composed. Even the skull is composed of *vertebræ*, whose arches have been enormously developed and soldered together so as to serve as a casket to hold the brain.


Beneath the vertebrate axis is another and a larger cavity usually enclosed by ribs, etc., bony arches attached to the lower side of the vertebræ, and within which we find the various organs for sustaining life and perpetuating the species. Cut the body of any vertebrate across and it will present the same general appearance inside, whether it be a fish, or a frog, or a sheep. Widely different as the limbs of all these animals are, they are all built on the same plan. The fins of a fish, the wings of a bat or bird, the fore legs of a frog or a horse, and the arms of a man, are only modifications of the same idea. They are strictly *homologous* to one another.

A homology implies a close fundamental agreement in structure. An arm and a bird's wing are made of exactly the same elements, but there is no other resemblance between the wing of a bird and that of a fly, than that they are both instruments used for flight. One is a modified arm, the other a dried up gill used as a wing, instead of being employed for breathing purposes. A resemblance of this kind, a mere outside resemblance between things fundamentally different, is called an analogy. The parts of an articulate may sometimes resemble those of a vertebrate—but the idea expressed in each is wholly different, and they only bear an analogy to one another. Homologies do not always imply outside resemblance. The stamens and pistils and petals of a flower, different as they appear, are nevertheless homologous to one another, and are only modifications of leaves. But how close so ever the wing of the leaf insect may ape the color and shape a withering leaf, the resemblance is after all only an analogy.

Animals must not be studied from catalogues or dry encyclopædias, as is so often the case; there are thought-nexi, that bind them more or less intimately together into groups, and these are the homologies which they bear to one another in their structure. The study of the homologies among animals is exceedingly interesting and profitable, and it should early be entered upon by the student, not from books, but so far as may be possible from the actual examination of specimens, using books as guides, by comparing carefully, part by part, different animals with one another.

One sees immediately that the members of a branch divide themselves naturally into several large groups, which again divide and subdivide until at last we come down to the single individual. Thus we find in the articulates that the articulate plan is expressed in three different ways, giving us three classes for the branch, namely, *Worms, Crustaceans and Insects*, which agree with one another in plan but differ in the *mode of its execution*. Each one of these classes contains several well marked divisions which we call orders; thus, the insects are all articulates in which the rings of the body are grouped together into three distinct regions, a head, middle-body, and abdomen, each of which differs from the others in the class of functions it performs; but in the class we have some insects which have worm-like bodies, and in which it is not easy to distinguish three regions; such are the centipedes, with their many rings and legs. Then we have the eight legged spider, where the head and middle body are united, and the body seems to be divided into only two regions, while the highest insects have the three regions of the body well marked out. These differences which characterize the orders of insects are rank-differences, and we see on what a different category orders are based from those which characterize classes and branches. So we may divide up orders into families, families into genera, genera into species, and species into individuals.

There is a great tendency among natural history students to lay too much stress upon the scientific names given to animals, and some collectors will overwhelm you with the names of everything about you. It does sound somewhat finely to be able to tell your friend that a sea urchin is called *Toxopneustes Dröbachiensis*, or what not, but if one does not know the structure and homologies of Echinoids, what does all that really amount to? In a great many cases these walking catalogues are wholly unillustrated by notes or remarks. To be able to give the name of every one you meet is not to know men and society. He who learns by rote the divisions of the animal kingdom as one would learn a verb, and stores his memory with the names of things, as a school boy crams a Latin vocabulary, knows no more of the spirit of natural history than the school boy does of the



genius of the Latin language. Better understand thoroughly the homologies that run through a class, even if you cannot call a single species of that class by its proper scientific name.

The only successful way to teach natural history, is to teach it orally. Prepare your subject for the day thoroughly, and get your class around you and talk to them, showing them specimens, and illustrating what you say by drawings on the black-board in colored chalks. Begin with the branches, and when the scholar can tell a vertebrate, a mollusk, etc., when he sees it, and really understands the plan on which it is constructed, take up the classes. If you have any love for Nature, you will find it most delightful, and I know of nothing more pleasant and inspiring than a class of young folks in natural history. But you must not be satisfied with merely talking to your class. Start a school museum, and set every one of your scholars at work to bring in all the animals he can collect. Teach the scholar to observe for himself. Give him specimens to examine and compare together and to make drawings of. Depend upon it, if you will but take a little pains, you will awaken an immense enthusiasm in your class, and you will have the pleasure of seeing your scholars receive a training that you had not dared to believe possible from such studies. In arithmetic we give problems to be worked out. You can propose questions to be solved in natural history; for instance, you may give a scholar a few insects, and require him to compare them together, and find the points in which they resemble or differ from one another, or you may require him to examine some animal so carefully that he will be able to describe it after you have taken it from him. By judicious management, you will find that it is possible to get much real study and hard work out of your scholars in the prosecution of Zoological studies.

CH. FRED. HARTT.

THE great secret of mental education is not, as is too generally supposed, the storing of the mind, but the making of it.

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SYSTEMATIC TECHNICAL EDUCATION.**SECOND PART.**

THE map of human knowledge, as we have seen, consists of:

I.—THE PHILOSOPHY OF NATURE; II.—THE PHILOSOPHY OF HUMAN NATURE.

Next, the philosophy of nature is divided into the following philosophies:

PHILOSOPHIES OF
FORM; SUBSTANCE; CREATION; LIFE.

And the philosophy of human nature is divided into—

PHILOSOPHIES OF
MIND; SPEECH; HISTORY; POLITICS.

Here we have already some data for the organization of our university. These philosophies are by custom not called philosophies of nature and of human nature, as we have called them; but the philosophy of nature is generally called science, and the *science* of human nature is generally called *philosophy*. Our university will accordingly take those two divisions; the division of science, and the division of philosophy.

THE UNIVERSITY.**I.—The Sciences.**

1. The Mathematical Sciences.
2. The Physical Sciences.
3. The Geographical Sciences.
4. The Biological Sciences.

II.—The Philosophies.

1. The Philosophy of Mind.
2. The Philosophy of Literature.
3. The Philosophy of History.
4. The Philosophy of Society.

THE PHILOSOPHY OF NATURE.

But these eight departments of university teaching must be broken up and specialised before they can either be taught effectually to our students, or be by them effectually employed to fill the wants of human life. The philosophy of form must be used as a general groundwork for the construction of the mathematical sciences, and these sciences

group themselves into the departments of calculus and geometry, according as their subject is viewed as made up of discrete parts, or of concrete continuity. And each of these again subdivides itself according as its elements consist of measured or unmeasured quantities, and forms that are stable or changing. Thus the philosophy of form becomes the foundation of the mathematical sciences, in their two departments of calculus and geometry, and their four divisions of quantity, number, place, and form.

PHILOSOPHY OF FORM.

MATHEMATICAL SCIENCES.

<i>The Calculus.</i>	<i>Geometry.</i>
Calculus of Quantity.	Geometry of Place.
Calculus of Number.	Geometry of Form.

The philosophy of substance becomes the foundation of the physical sciences, which are two: the science of physics proper, or natural philosophy, which concerns itself with the properties and phenomena of matter, and the laws of matter in general; and the chemical sciences, which concern themselves with distinguishing the different kinds of matter, their properties, their combinations, and the phenomena which result from, and the laws which govern, their union and separation. The one concerned with the properties of matter and the forces which regulate its phenomena; the other with the peculiarities of matter, and the specialities of the phenomena of each: giving rise to the following divisions:—

PHILOSOPHY OF SUBSTANCE.

PHYSICAL SCIENCES.

<i>Natural Philosophy.</i>	<i>Chemistry.</i>
Properties of Matter.	Chemistry of Elements.
Phenomena of Force.	Chemistry of Compounds.

We next come to what are often called the natural sciences, in which we record the phenomena, and examine the structure and distribution, of the material creation of which we form a minute part. The survey of the heavens; the inventory, places, and paths of the stars; the earth, its form,

its matter, its convolutions; the sea, its distribution, its tides and waves, and currents; the matter of the earth, its convolutions, its hidden structures, its buried inhabitants;—all this forms a world-knowledge, or cosmology, to which the name of natural history, or natural science, is not very appropriately given; and which the names astrology, geography, and geology, do not very aptly describe. Under the philosophy of creation we have therefore the following departments:—

PHILOSOPHY OF CREATION.

COSMOLOGICAL SCIENCES.

Cosmology Proper.

Astronomy.

Geodesy.

Geology.

Physical Geography.

Special Geology.

The last stage in our study of the world of matter is that in which it has been so organized as to form the structure of living beings. The habitations of vegetable life are structures of wonderful complexity, ingenuity, and exquisite beauty. Their hidden anatomy displays to us wonderful examples of every kind of invention, contrivance, and ingenious disposition of matter, and furnishes examples of the application of forces to produce motions, and of means and mechanism to apply those motions to the functions of life and usefulness. By means of the study of these, we too may learn how to organize dead matter in conformity with our thoughts; how to contrive mechanism to obey our commands; how to set means on the way to ends, so as to accomplish even our most fantastic wishes. In the study of the structures and phenomena of material life, we separate them into two great kingdoms,—of growing life, and moving life; of rooted beings, and locomotive beings; and in examining the structure of these beings by the knife of the anatomist, and the eye of the microscopist, we separate with ease the structure of the rooted plant from the framework of the moving animal. The vegetable kingdom and the animal kingdom thus separate the world of life into two; and it is hard to say whether the lesson we take from the organization of growth in vegetables, or the movements in animals, is the more valuable.

The anatomy of plants, and the anatomy of vegetables, is but the beginning of their study. We have next to see how this hidden mechanism which we have revealed does its work of developing, sustaining, and maturing the living thing: how seeds grow into plants; how the stem of the plant throws roots downward into the earth, and out of that great chemical laboratory selects, extracts, and draws up into itself the matter of organization and nutriment: how the same stem at its upper end throws up branches larger and wider into the region of the air, there to form another chemical laboratory, where also it exchanges all the matter it does not want for those elements in the air which nourish its life; how each bud of each plant contains first a new plant, the exact copy of its parent stem; and how in the extremity of each stem is cradled a new and young plant, at its birth encircled by the fanciful decorations of wreaths of flowers; and how the cradle of the young plant is so formed as to float its youthful charge in the air, or bear it harmless along the surface of the water, or coated with an armour which shall secure the germ of future life against the blows and shocks of storms. All this forms an insight into the laws and workings of creation, quite as instructive, quite as grand, even more removed beyond the sphere of human mastery than the movements of the planets themselves. This forms the physiology of vegetable life, and leads us to study what food plants should eat; what liquids they should drink; how they should be tended, protected, propagated, improved. These lead us up to the physiology of animal life: how the infant grows, strengthens, matures; how its health should be tended, developed; how its weakness should be cured, disease averted, misfortune set right. The whole story of animal life: sleep, food, digestion, sight, hearing, taste, smell,—all those mysteries which make up the human animal, and go to make the body a fit engine for the rational mind, and habitation for the divine soul,—all that is the subject of the physiology of animal life.

The human body, then, is the crowning knowledge of the whole science of the world of matter. A step further, and we trench on the philosophy of mind.

THE EDUCATION AND USE OF GESTURE.

SECOND PART.

GETTING the hands up, using them, and getting them back again, with ease, force, and grace are the three essential requisites in the mechanism of gesture. Much practice of the following simple instruction, is believed to be the surest and speediest road to this rare accomplishment :

Stand erect, with arms extended laterally, and on a line with the shoulders; arms and hands kept perfectly straight, and fingers together. In this position move the hands rapidly up and down, using the wrist joints only. Exercise in the same way with arms straight and extended upward, in front, and downward; on a line with the shoulders. In the four directions, with arms extended as before, execute rapid circular movements of the hands, using the wrist joints only. Observing the same instructions as to direction and position, writhe the hands and fingers with great force. Try to throw the fingers from the hands by strong and rapid shakings in the four directions. Swing the arm rapidly and freely in circles about the shoulder; arm straight. Move both arms in the same way.

The object of the foregoing exercises is to give strength and pliability to the muscles and joints of the arms and hands, thereby securing ease, strength, and freedom of movement. These somewhat trying exercises should precede the following less tedious movements, until the student is convinced that they are no longer necessary.

Low Congenial Gestures.—(1.) Stand erect, arms by the sides in repose position; move the arms upward toward the body, and at a sufficient distance therefrom to maintain graceful curves, until the points of the little fingers meet, or nearly opposite to the abdomen. This is the preparatory movement. The fingers should be slightly separated, and thumbs turned slightly outward, palms oblique. (2.) Move the arms in slight curves outward and downward, hands oblique, palms turned outward; and, by bending the wrist joints, add a curvilinear motion of the hands in unison

with the sweeping curves of the arms. This is the second, or expressive movement. (3.) After the completion of the expressive movement a slight pause occurs, after which bring the arms in curves by the return movement to the repose position.

Middle Congenial Gestures.—(1.) Move the arms upward from repose position until the points of the little fingers meet, or nearly opposite to, and at a sufficient distance from, the chest, to secure graceful curves of the arms. (2.) Move the arms outward in horizontal curves. (3.) Bring arms to repose position.

High Congenial Gestures.—(1.) Move the arms upward until the points of the little fingers meet, or nearly opposite to, and at a sufficient distance from, the chin, to ensure grace. (2.) Move the arms upward and outward in oblique curves. (3.) Bring arms in slight curves to repose position.

In the practice of the above described gestures, the student must be careful to allow nothing but curves in position and movement, and not neglect the position and movements of the hands in the execution of the expressive part of gesture, as described in the expressive movement of Low Congenial Gestures.

Emphatic Gestures demand angles and straight lines in position and movement, as they express states of mind more associated with force than grace.

Low Emphatic Gestures.—Stand erect, arms in repose position, as before described. (1.) Move the arms in angular position and in straight lines until the points of the little fingers meet near the abdomen. (2.) Move the arms in a straight line obliquely downward until they are straightened, palms oblique and turned outward. (3.) Bring arms in straight lines to repose position.

Middle Emphatic Gestures.—(1.) Move the arms in angular position and in straight lines until the points of the little fingers meet near to the chest. (2.) Move the arms outward and horizontally in straight lines until straightened, palms oblique and turned outward. (3.) Bring arms in straight lines to repose position.

High Emphatic Gestures.—(1.) Move the arms in angular position and in straight lines until the points of the little

fingers meet opposite the chin. (2.) Move the arms outward and obliquely upward until straightened, palms oblique and turned outward. (3.) Bring the arms in straight lines to repose position.

Aversive Gestures likewise demand angular and straight lines both in position and movement, as they express mental states more associated with force than grace. Observe the same general directions given for practice in *Emphatic Gestures*, and practice *Aversive Gestures* in the three directions. The only difference between them is, that in the second, or expressive movement, the palms are reversed and the fingers distended.

The student should also practice *Congenial*, *Emphatic*, and *Aversive* gestures, using but one arm. In one-arm gestures, observe the same directions as given for the foregoing movements with both arms. The preparatory movements in each direction terminating opposite to the medium line of the body. Expression sometimes demands a more extended preparatory movement; in such case, the hands are carried opposite to the side line of the body, giving a longer sweep to the expressive movement. In all these exercises the shoulders are the centres of motion. In the expression of certain concentrative states of mind, however, the forearm alone is used, the elbow being the centre of motion. Such states of mind require but little action. The gestures to express them are classed with the *Emphatic* gestures, and are called *contemplative* and *argumentative*. Lawyers and teachers have occasion to use this class of gesture more than any others; but they are apt to use them all the time, on unemphatic as well as on emphatic words, thus making gesture a monotony of movement that may express the speaker's earnestness or nervousness, but does not sufficiently mark ideas which should receive the emphasis of gesture.

Every one is familiar with the terse and trite advice so frequently and ignorantly given by teachers with regard to gestures—"be *natural*,"—when to be natural is to be disagreeable and awkward nine times out of ten. Others, who ignore elocutionary training, quote with self-satisfied emphasis "earnestness is the soul of oratory," meaning that

earnestness is the *all* of oratory. Earnestness is the soul of oratory; but it must be directed and controlled by judgment and taste to subserve the highest uses. Some are opposed to the study and practice of gestures, giving as a reason that it would make them unnatural and mechanical. It is a matter of no little wonder how such persons ever trusted their minds to the educative processes of school or college, for fear of being made mechanical and unnatural!

It is now necessary to consider the positions and movements of the lower limbs, and gestures as related to them. For the convenience of analysis and description, the positions are numbered; only the most important will be considered. The necessity for the different positions described arises from the action of the same general law that determines the character of gesture, viz: the different states of mind demand distinctive particulars of expression.

In the practice of the positions to be described, the student must carefully observe the following cautions: In every position the feet must be placed so as to sustain the weight of the body with ease and grace; the heels supporting the general weight of the body; the balls of the feet and the toes, the shoulder or side weights of the body. Ease and grace are secured in every position by simply placing the feet in line oblique to the body, the toes on a line with the points of the shoulders, and the heels never so widely separated as to disturb the equilibrium of the body.

By observing these requisites for ease and grace, the feet will present something less than a right angle in each position. Otherwise, awkwardness and insecurity of position are inevitable.

The thirteen positions may be briefly described as follows:

First Position.—Weight of body on right leg, knee straight, left knee bent, heels together or nearly, toes on line with the shoulders.

Second Position.—Weight of body on left leg, knee straight, right knee bent, feet in same position as before.

There are six modifications of the above positions, which may be taken instead of those described. They are: (1.) Move the leg, not sustaining the weight of the body, by a short lateral step; knee remaining bent. (2.) Straighten the

knee by a second step in same direction. (3.) Bring the heel of the moved foot from last position to the hollow of the unmoved foot, knee bent. (4.) Straighten the knee by a short step obliquely to the front. (5.) Bring the hollow of the moved foot from last position to the heel of the unmoved foot, knee bent. (6.) Straighten the knee by a short step obliquely to the rear. In assuming these modifications the weight of the body remains firm on the unmoved foot.

Third Position.—Advance the right foot from the first position by a short step, knee straight, weight of body on advanced foot, left leg following advance of body, straight, and resting on toe.

Fourth Position.—Advance to the left, observing directions given for right advance.

Fifth Position.—Advance right foot from first position by a long step, knee bent, weight of body on advance foot, left leg following the advance of the body, straight, and resting on the toe.

Sixth Position.—Advance left foot, observing the directions given for the right advance. The fifth and sixth positions are expressive of strong excitements of a congenial or elevated nature, and are therefore called the Elevated Advance.

Seventh Position.—Advance to the right as in fifth position, but with both feet planted firmly, ready for offence or defence.

Eighth Position.—Advance with left leg as in sixth position, but with both feet planted firmly, ready for offence or defence. These positions are called the Basilar Advance, expressive of their character.

Ninth Position.—From first position take a short step, with right foot obliquely to the rear, weight of body on rear foot, both legs straight, the left resting on toe in front.

Tenth Position.—From first position take short step on left foot obliquely to the rear, weight of body on left foot, both legs straight, the right resting on toe in front.

Eleventh Position.—From first position take long step with right foot obliquely to the rear, knee bent, weight of body on rear foot, the left straight, resting on toe in front.

Twelfth Position.—From first position take long step with

left foot obliquely to rear, knee bent, weight of body on left foot, right leg straight, resting on toe in front.

Thirteenth Position.—Heels together, legs straight, body drawn up to its full height, chest expanded, head thrown slightly backward.

In the expression of unexcited states of mind, and moderate excitements which do not advance or throw back the body, the first and second positions, or some modifications of them are demanded. Moderate excitements, which advance the body, demand the third and fourth positions; strong excitements, which advance the body, the fifth, sixth, seventh, and eighth positions. Moderate excitements, which determine backward movements of the body, the ninth and tenth positions; intense excitements, which necessitate backward movements of the body, the eleventh and twelfth positions. In all the foregoing positions, the weight of the body is sustained mainly on one leg, either the right or the left. States of mind strongly associated with *ego*, or dignity, require the thirteenth position. In this position the weight of the body is sustained equally on both legs.

The general forward and backward movements of position are, as indicated in the above practice, in a line oblique to the perpendicular of the body. The student, however, should practice the advancing positions directly to the front, side, and rear, accommodating the body and the positions of the feet to the direction of advance, so as to insure ease as well as grace.

The body in all its movements should accommodate itself to the direction of the mind's attentions. The movements of the arms, as related to those of the lower limbs, are regulated by the following rules:

In all gestures, except the Aversive, and when but one arm is employed, use the arm on that side of the body where its weight is determined. First position, right arm; second position, left arm; third position, right arm; fourth position, left arm, and so on. When both arms are used directly to the front, the position assumed is immaterial, as the movements of the arms would not disturb the equilibrium of the body; but when the attention of the mind is positively to the right or left, both arms in gesture must

move in the direction of the body's advance or weight. When the attention of the mind is not positively to the left, the weight of the body is to the right, and the right arm is used, or both arms to the front, as expression may require. In Aversive gestures, and when but one arm is employed, use the arm opposite to that side of body on which its weight is determined. When both arms are carried to the front, expressing aversion, it is immaterial whether the weight is fixed on the right or the left foot; but, as a general rule, on right. When the aversive attention is positively right or left, both arms move to right or left in the direction of attention, and opposite to weight of body, the ninth position would require the left arm, or both to the front; the tenth, the right arm, or both to the front; the eleventh, the left arm, or both to the front; the twelfth, the right arm, or both to front.

To describe every position and movement used in the expression of thoughts and feelings would be impracticable, if not impossible. I have endeavored only to present a few hints on this important and much neglected feature of oratorical training, earnestly hoping that they may be of some practical benefit to young speakers. Nothing can take the place of the living instructor, who can be a model as well as a director; but the suggestions here given may be of great assistance to those who cannot enjoy the advantage of thorough elocutionary training.

WALTER C. LYMAN.

ACCURACY IN EDUCATION.—I do not know that there is anything, except it be humility, which is so valuable as an incident of education as accuracy. And accuracy can be taught. Direct lies told to the world are as dust in the balance when weighed against the falsehoods of inaccuracy. These are the fatal things; and they are all-pervading. I scarcely care what is taught to the young, if it will but implant in them the habit of accuracy. . . . Besides, there is this important result from a habit of accuracy, that it produces truthfulness even on those occasions where a man would be tempted to be untruthful. He gradually gets to love accuracy more even than his own interests.—*Arthur Helps.*

WOMAN'S NEED OF SPECIAL EDUCATION.

MARY CLEMMER AMES contributes to the *Independent* an article on "Margaret Fuller," which contains the following criticism of the prevailing aimlessness of the education of women. We have read nothing that goes more directly to the quick of the matter.

"It is not," she says, "the want of native power, nor want of opportunity, nor the envious prejudice of men, which debars women from the places of personal independence and influence which they covet, so much as it is their own lack of accurate knowledge, of faculties disciplined to special uses. One born with the faculty divine may write rhymes and romance, if one only knows the alphabet; one may do no small amount of showy and shammy work with just a smattering of lore; one may play brilliantly with things in general, without knowing anything in particular; but there is a vantage ground of thought as well as of action, which no mere show can reach, before which all shams fail. In the highest degree to weigh, measure, compare, analyze and judge involves not only the natural power to do it, but a long discipline and preparation of that power for its finest use. The total lack of such discipline is the most distinguished fact in the average education of women. The number and names of their studies are appalling. They know a little of many things—nothing accurately or thoroughly. How many women, called accomplished, who, if orphaned or widowed, are totally unable to earn a livelihood by instructing others in any branch of knowledge which they have been superficially taught. They are sure of nothing that they have studied. They possess no knowledge which they can make available; not a single power trained to use, not a mental gift which can command in gold an equivalent for its service. Thus through their very training inferior men are constantly taking the precedence of superior women. However little a man may know, he is usually sure of what he does know. His power, if limited, is at least available; and for success it is better to be able to do one thing perfectly than a thousand indifferently. How

many bright women we know who are earning their bread in subordinate or menial positions solely through the want of the mental training which, did they possess it, would bear them at once to higher and better places. How many dull men we know full of authority, influence, and money, solely because their rather scanty powers were trained to special use; because they used them steadfastly for a definite purpose. Positions of responsibility and influence are constantly opening to women who are fitted to fill them. A few men may be envious and jealous about it—that is human nature; but even now there is nothing in their envy or jealousy which can prevent a woman from commanding the position which she has fitted herself pre-eminently to fill. Then would it not be more effective if the leaders who devote themselves to the interests of women should spend a little less time in lecturing men, and a good deal more in the special training of their daughters? It is too late to atone for the superficial education or the lack of education in the women of the present generation, who are already weighted with all the burdens of mature life. But it is *the* hour to train the woman of the coming generation; to educate her for the largest use of her faculties; to give her that special training, in whatever direction she shows the most talent, which will make her mistress of at least one of the arts of the world, which in any emergency will enable her to be a self-respecting, self-supporting being. Let her be trained as her brother is trained, with a reserved power to meet the vicissitudes of life. Then, if she escapes, she is but the richer; and, if not, she may rejoice no less in the exceeding great reward of faculties trained to noble service. For such we commend Margaret Fuller as the most illustrious example of scholarship in woman which our country has yet given the world. Not that we should be sorry to see the girl of our own period writing Latin poems at eight years of age, or digging out Greek roots before breakfast, or in any way teaching her brain at the expense of her digestion. This is not necessary. In Margaret Fuller's early days it was supposed that the head condescended to no relationship with the stomach. We know better. We know that there cannot be a healthy brain without a healthy stomach, and that

physical culture must keep pace with all intellectual development. But the unthinking prejudice against high scholarship in woman has been, not that it injured her stomach, but that in some very unphysiological way it repressed her heart. Nonsense! A man may be a scholar or a thinker; he is no less manly, it doesn't hurt his heart. A woman because she studies and thinks is no less a human being; but the *more*, in the proportion which her whole nature grows. Thus Margaret Fuller, illustrious as scholar and thinker, is no less pre-eminent as a daughter, sister, wife, and mother. Her heart, as capacious as her mind, compassed the fullness and sweetness of every human relation. Thus in the double perfect meaning we hold up her name as that of the grand typical woman of our country and time."

SCIENTIFIC EDUCATION.—I do not mean that every school-boy should be taught everything in science. That would be a very absurd thing to conceive, and a very mischievous thing to attempt. What I mean is that no boy or girl should leave school without possessing a grasp of the general character of science, and without having been disciplined more or less in the methods of all sciences; so that when turned into the world to make their own way they shall be prepared to face scientific discussions and scientific problems, not by knowing at once the conditions of every problem, or by being able at once to solve it; but by being familiar with the general current of scientific thought, and being able to apply the methods of science in the proper way when they have acquainted themselves with the conditions of the special problem. That is what I understand by scientific education. To furnish a boy with such an education it is by no means necessary that he should devote his whole school existence to physical science; in fact, no one would lament so one-sided a proceeding more than I. Nay, more, it is not necessary for him to give up more than a moderate share of his time to such studies, if they be properly selected and arranged, and if he be trained in them in a fitting manner.—*Huxley*.

THE DIET OF BRAIN-WORKERS.

THE reasons why brain-workers need a better quality and larger quantity of nutrition than mechanics and laborers are the following :

1. Labor of the brain causes greater waste of tissue than labor of the muscles. According to the estimates of Prof. Houghton, three hours of hard study produce more important changes of tissue than a whole day of muscular labor. Phosphorus, which is a prominent ingredient of the brain, is deposited in the urine after mental labor, and recent experiments have shown that by chemical examination of these phosphates deposited, it is possible to determine whether an individual has been chiefly using his brain or his muscles.

That the brain is the organ of the intellect is now as well established as any fact of science. The brain, being the noblest organ of the body, receives a greater proportional amount of blood than any other part, and is of course correspondingly affected by the quantity and quality of the nutrition. It has been estimated that one-fifth of the blood goes to the brain, though its average weight is not more than fifty ounces, or about one-fortieth of the weight of the body.

2. Brain-workers as a class are more active than mechanics or laborers. The literary man need never be idle, for his thinking powers—the tools of his trade—are always at hand. Bulwer, in his *Caxtoniana*, mentions this fact as a great advantage that the literary man has over all others. The mechanic has a definite task, assigned for certain hours, and when that is over, he feels free to rest. On the other hand, the powers of thought and composition are only interrupted by sleep, and the intensity of the labor is measured by our mental discipline and powers of endurance.

3. Brain-workers exercise more or less all the other organs of the body as well as the brain. Even the most secluded book-worm must use his muscles, to a greater or less extent, and the great majority of literary and professional men are forced to take systematic and vigorous exercise, in order to keep their brains in good working order. On the other

hand, the uneducated and laboring classes, while they toil with their hands as their daily necessities require, are apt to let their brains lie idle, and thus the most important part of their nature undergoes comparatively little change, except that which comes from time and disuse.—*Dr. Beard, in Hours at Home.*

THE THREE R'S.—About the three R's. we are all agreed. They constitute, as it were, the tools without which the ore of knowledge cannot be acquired or used. But to those who have those tools and have learned how to handle them, surely the best end to which they can be applied is that which will most directly help to qualify their possessors to do the work of life which they will have to do. . . . To open and enlarge men's minds is, it is true, the function of education; but it can hardly be considered the ultimate object of it. What they specially need is that their intellectual and moral faculties shall be developed, and their stock of information continually increased by such exercise as will be practically available for them in respect of what they have or aspire to do in the field of everyday life and labor.—*London Ill. News.*

HAPPINESS ABOVE KNOWLEDGE.—It is given but to very few of us to hand down to posterity a name made great and famous in the world's strife. We are most of us, plodding, uninteresting folk, who seem to leave no mark on the world. History will never know us. The children of captious, exacting parents are often themselves captious and exacting; while the memory of loving sympathy, bestowed upon ourselves in our young days begets in us the like sympathy towards others. In this way we can all do a good work in the world, and leave behind us loving remembrances. What is it a man dwells upon in the memory of parents passed away? We fancy it is the games played and races run together rather than the money left behind by them. It is the parent who must really educate the child; the schoolmaster will never do it. He may cram a certain amount of Greek and Latin into a boy's head, but there he stops. He will never

supply the place of the father. It is for the latter to rouse in a child a taste for what is noble and beautiful. Above all, youth should be a time for love and peace and happiness; for none can say what shall come after! Who does not creep with pain at the cry of a child? Let the little ones, at all events, have a happy childhood to look back upon, and then let fate do her worst, it cannot rob them of the remembrance of the past joys, which are their inheritance for ever.—*London Review*.

THE wise man is beneficent and reverent, because he reasons not alone from intellect and science, but likewise from the feeling of beauty and the emotion of love and faith. If both intellectual and emotional faculties are developed within him he cannot do otherwise—both witnesses plead and he must hear them: they have been bred in him; they are bone of his bone. But let one be suppressed, and the most rational adjudication is most partial. Let intellect be suppressed (as we find it in some places) and the result is superstition and idolatry. Emotion cannot prosper without knowledge: she will have brute gods and human victims. But without her, religion is extinct; and even science (in these days her assumed antagonist!) would presently become a moral pest, going to war for a theory, vivisectioning human subjects, or destroying deformed infants, as the emotion suppressing Lacedemonians did in fact.—“*Outis*.”

C O R R E S P O N D E N C E .

MR. EDITOR:—In your issue of December, 1869, you charge the “unfortunate” endorsers of Worman’s wretched production with having been “criminally unwary, incompetent, or corrupt.”

As far as I am concerned—being one of the luckless individuals who were betrayed, by mere outside appearance, and the example of others that had already eulogized the book, into an endorsement of the same,—I might answer you that I have already done what I could to rectify so grievous a

mistake. You are aware of my having publicly declared, in the *Nation*, that I had been sadly mistaken and guilty of great carelessness in this matter. Unfortunately, this declaration of mine has had no effect at all on Messrs. Barnes & Co., who continue scattering over the land their advertisements of Worman's book with numerous endorsements—mine among the number—attached to them.

I ask you, what can a wretched victim of this unparalleled swindle do to have his name separated from such doubtful and objectionable "authorities" as those found in that list of endorsers? Must a mistake committed in an evil hour have such consequences? Can there be no remedy? Is there no end to such terrible punishment? I am inclined to believe that Messrs. Barnes & Co., are as inexorable as death itself. Whomsoever they once have in their grip, *i. e.*, on their list of endorsers, may well say with Dante,

. lasciate
Ogni speranza voi ch'entrate !

I don't know whether I deserve your charge of having been "criminally unwary, incompetent, or corrupt;" but I have learned to my cost that it is very much easier to make a mistake than it is to correct one.

CHARLES A. EGGERT.

IOWA STATE UNIVERSITY, Iowa City, Dec. 4th, 1869.

MR. EDITOR:—I have to-day received a letter from Miss Matilda Lewis, Principal of the Training Department of the California State Normal School, at San Francisco, utterly repudiating the statements made in your criticism of November as to the authorship of the Object Lesson on Chalk, which you so successfully ridiculed.

You will remember that you then made the unqualified assertion that the lesson was prepared by one who had been thoroughly trained in the Oswego School, and who had gone to the Pacific coast to introduce these methods. We are now prepared to show that the charge is without the shadow of truth. As Miss Lewis is the only person who has had any instruction in methods of teaching in the Oswego

School, or has ever visited the Pacific coast in the capacity of a teacher, she has a right to answer this charge. She scorns the idea of being considered capable of committing such a libel on the Oswego methods.

The only persons in California who have ever received instruction from a graduate of the Oswego School are in a class that has been under her training for four months, and not one of them has presumed to write a sketch of an Object Lesson for any educational or other journal.

This same printed sketch of a Lesson was brought before the class of Miss Lewis for criticism, to lead them to observe its errors, and avoid falling into similar mistakes.

The author of the lesson referred to is known, and you will do us the justice to correct your mistake, and say that she never received any instruction in methods of teaching either in the Oswego School or from any person who has ever been a member of it.

E. A. SHELDON.

OSWEGO, Dec. 10, 1869.

MR. EDITOR:—In an article headed “Needed Reform in Babydom,” published in the EDUCATIONAL MONTHLY, of December, 1868, I endeavored to call public attention to the sad state of our present Nursery Literature, and proposed certain reforms therein. Thus, instead of the unmeaning rhyme,

Froggy would a wooing go
Whether his mother would let him or no;
Heigh—ho—Gammon!

I suggested the following amendment, as being both practical and useful:

A dollar, loaned at six per cent.,
Will yield six cents to pay the rent;
Per annum!

To this I added two others, one pertaining to a fact in “Mathematics,” and the other elucidating a point in what may be termed “Natural Philosophy.”

It is satisfactory to perceive that, in the Editor’s Drawer, of last month’s Harper’s Magazine (Dec. 1869), a “practical parent” has carried the idea still further, and given us im-

proved versions of "*Twinkle, twinkle, little star*,"—"Little Jack Horner,"—"Jack and Gill,"—"Hey diddle diddle!" and "*Little Miss Moffat*." If we go on at this rate, we shall soon have enough copy to fill a moderate sized book with "New Nursery Rhymes," which, let us hope, will be instructive as well as entertaining to the very young ladies and gentlemen of the rising generation.

R. W. HUME.

ASTORIA, L. I., January, 1870.

EDUCATIONAL INTELLIGENCE.

UNITED STATES.—On pages 78 and 79 will be found an interesting table of the School statistics of all the States having public schools in operation during the year 1867-8. Though containing no new information, the table is valuable in that it affords an easy opportunity for instituting a direct comparison of the schools of the different States. Of this table, Superintendent Wickersham, of Penn. (in whose annual report, as published in *The Pennsylvania School Journal*, for January, we find it) justly remarks that it is "the best fruit yet produced by the National Department or Bureau of Education established by act of Congress in 1867. It is compiled from the reports of the several States included in it, and necessarily partakes of all their imperfections, together with the additional one of reducing them to one form of statement." Mr. Wickersham goes on to make to the National Department a suggestion similar to that which we made to the National Associations of School Superintendents in our issue for August, 1868. He says: "If the National Commissioner of Education would prepare suitable schedules the several States could adopt them, and thus obtain like facts all over the country;" and adds that Pennsylvania is ready to change the forms she now uses for others that may be better suited for the purpose in a larger field. It is to be hoped that other superintendents will press this matter, so that school reports may be made as we suggested long ago, "something more profitable and satisfactory than the heterogeneous jumbles of diverse statistics that we now have."

Educational Statistics.

EDUCATIONAL STATISTICS OF DIFFERENT STATES FOR 1867-'8.—COMPILED BY THE
NATIONAL BUREAU OF EDUCATION.

STATES.	Date of Report.	No. of Persons. Number of Pupils.					In Average Daily Attendance.	Registered.	Between the ages of—	Enumerated.	Capital of School Fund.	Income from Funds.	Annual Cost of Tuition for each Pupil in Average Daily Attendance.	Amount paid for Teachers' Salaries.	Average Cost per Month for each Pupil Registered.	All Expenditures.	Tuition and Incidentals.	Tuition alone.	Average Monthly Salary of Female Teachers.	Average Monthly Salary of Male Teachers.	No. of Female Teachers.	Number of Male Teachers.	Average Duration of Schools in Months.	No. of Schools or Districts.	No. of Pupils.	Total.	
		5-15	15-20	20-25	25-30	30-35																					
California	1867	94,149	5-15	61,227	46,333	1,053	2	2	616	773	\$77.00	\$64.00	\$1.53	\$3.21	\$1.65	\$864,110	\$15.00	\$250,000	\$1,234,400								
Connecticut	1867	123,090	5-15	73,356	56,567	1,645	2	2	1,550	2,037	50.04	20.91	94	1.17	1.37	660,058	10.77	136,019	2,044,015								
Illinois	1868	831,030	5-21	766,780	490,324	16,705	7	7	8,240	10,797	44.40	32.80	64	1.78	1.17	3,332,043	8.86	436,997	6,240,338								
Indiana	1868	591,061	5-21	436,736	283,340	18,304	4	4	6,463	4,230	37.00	28.40	40	1.03	1.34	2,474,533	5.21	468,344	7,611,337								
Iowa	1867	372,969	5-21	237,251	143,630	6,259	5	5	3,076	6,667	35.88	24.04	36	1.13	1.35	1,101,653	7.82	177,791	4,274,537								
Kansas	1867	70,430	5-21	45,140	27,238	1,372	4	4	746	855	39.44	26.11	94	1.39	1.03	203,576	7.69	57,149	96,707								
Kentucky	1867	335,590	5-20	170,403	112,508	1,401	3	3	1,857	2,042	37.70	20.79	71	1.79	1.03	366,538	3.80	84,016	1,468,270								
Maine	1867	112,309	5-21	129,143	92,827	1,453	3	3	862	1,066	35.13	15.13	63	1.03	1.03	541,041	5.63	17,719	244,128								
Massachusetts	1867	224,219	5-15	217,304	196,984	1,779	1	1	935	4,874	66.92	20.44	25	1.31	1.03	883,647	13.81	16,058	62,075								
Michigan	1867	251,496	5-20	217,304	136,000	6,744	6	6	2,007	7,377	44.03	19.40	61	1.95	1.13	917,559	7.00	24,738	2,176,977								
Minnesota	1867	128,103	5-21	61,696	38,336	2,333	4	4	603	2,313	30.23	22.15	98	1.92	1.48	322,775	6.08	243,943	2,331,162								
Missouri	1867	478,192	5-18	168,470	112,866	4,460	3	3	2,062	3,868	35.56	25.38	35	1.75	1.03	2,403,310	12.20	14,833	2,265,147								
Nevada	1868	3,293	5-18	2,403	1,466	37	7	7	12	127	157	167.58	3	3	3	48,315	20.09	14,833	89,206								
New Hampshire	1868	140,370	5-18	77,138	52,470	39	4	4	877	2,453	34.04	27.73	45	1.79	1.03	219,377	4.13	33,000	560,700								
New York	1868	1,276,983	5-21	949,203	419,937	17,731	9	9	821	1,418	47.44	29.57	49	1.79	1.03	4,387,472	14.50	330,000	2,827,465								
Ohio	1868	1,019,194	5-21	731,772	467,721	11,731	9	9	5,574	12,128	67.46	29.55	55	1.79	1.03	3,379,681	8.25	325,718	3,334,500								
Pennsylvania	1868	569,934	5-15	367,783	238,728	13,939	6	6	7,244	9,860	39.00	30.34	70	1.70	1.03	3,508,704	7.85	25,000	412,688								
Rhode Island	1868	69,706	5-15	36,786	23,872	1,373	3	3	130	503	49.69	23.20	61	1.12	1.03	177,906	6.17	23,000	412,688								
Vermont	1867	111,509	5-20	69,093	41,683	1,460	5	5	94	518	39.69	26.36	38	1.45	1.03	377,967	6.31	23,136	172,033								
West Virginia	1867	371,403	5-20	239,945	124,771	4,613	6	6	2,068	6,768	40.70	26.36	38	1.45	1.03	924,682	7.42	166,710	2,066,368								
District of Columbia	1867	33,113	5-18	168	109	109	10	10	6	163	133	47.45	1	1	1	85,475	10.15	50,000								
Total		7,404,871		5,812,914	3,403,493	106,980												\$1,144,864	\$45,433,743								

† Male and Female.

* Districts.

EDUCATIONAL STATISTICS—CONTINUED.

STATES.	Amount Raised by Taxation.			Expense of State Supervision.			County and City Supervision, Normal Schools, Institutes, &c.					Total expense for Public Schools.			
	State.	County.	City, Town and District.	Tuition or Rate Bills.	Fines, Licenses, &c.	Total.	State Superintendent.	Clerks.	Travel, Printing, &c.	Total.	County Supervision.		City and Town Supervision.	Normal Schools.	Teachers' Institutes, Associations, &c.
California.	\$268,011	\$52,294	\$33,728	\$51,966	\$10,858	\$1,316,408	\$3,000	\$1,800	\$2,605	\$7,205	\$27,000	—	\$8,000	\$1,741	2,500
Connecticut.	900,000	—	635,152	130,407	138,493	906,072	3,000	3,000	6,000	—	—	—	—	—	245,925
Illinois.	950,000	—	425,670	—	27,004	5,177,074	3,000	3,000	—	—	—	—	—	1,814	2,350,800
Indiana.	—	—	1,102,441	—	154,163	2,186,604	1,500	1,800	4,600	7,100	18,000	25,000	37,743	3,800	579,504
Iowa.	—	—	1,498,286	—	—	2,876,712	—	—	—	—	—	—	—	3,100	637,911
Kansas.	478,365	—	—	—	30,805	373,227	1,200	—	1,600	2,800	—	—	5,637	—	230,378
Kentucky.	342,443	—	—	—	—	448,300	—	—	—	—	—	—	—	1,100	—
Maine.	185,000	—	200,000	—	—	612,734	1,800	—	3,000	4,800	—	—	8,000	200	373,451
Maryland.	521,694	90,013	32,715	—	30,801	977,282	2,500	3,000	6,000	5,100	20,100	2,000	8,000	—	72,841
Massachusetts.	—	—	4,131,348	—	—	4,131,348	6,400	1,000	—	90,497	10,775	90,497	10,775	2,082	4,031,557
Michigan.	389,908	—	874,304	107,171	581,055	2,183,498	2,000	3,000	10,000	12,300	35,000	—	15,000	2,000	2,700,437
Minnesota.	—	—	306,278	—	—	306,278	2,500	—	500	3,000	—	—	—	—	805,369
Missouri.	174,304	—	249,610	—	37,758	37,549	2,500	—	—	—	—	—	—	—	1,074,144
Montana.	—	—	16,148	—	—	37,549	—	—	—	—	—	—	—	—	78,430
Nebraska.	40,546	—	—	—	36,270	281,607	—	—	—	—	16,300	—	—	—	301,742
New Hampshire.	331,713	—	32,402	—	—	1,266,679	2,000	—	—	—	66,108	7,000	11,500	—	2,145,475
New Jersey.	65,000	—	1,140,142	61,637	832,207	8,747,035	3,500	9,285	1,117	3,217	—	—	—	—	7,683,201
New York.	2,500,135	—	5,101,255	743,048	718,303	5,741,511	2,000	1,000	35,000	48,285	33,000	20,000	33,000	20,000	8,705,057
Ohio.	1,386,911	—	3,270,741	—	—	6,660,358	2,500	6,000	10,000	14,000	50,000	16,350	17,000	55,585	6,006,148
Pennsylvania.	500,000	—	6,160,353	—	—	2,545,807	3,200	—	30	1,290	—	4,450	—	—	2,415,807
Rhode Island.	—	—	165,161	9,631	20,867	245,840	—	—	—	—	—	—	—	—	304,834
South Carolina.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tennessee.	211,944	—	—	—	—	188,477	1,500	—	705	2,205	—	—	3,000	—	474,901
Texas.	188,477	—	—	—	—	1,493,278	2,700	1,000	4,208	5,900	35,000	1,000	31,253	400	1,490,132
West Virginia.	—	—	1,330,018	—	161,260	1,493,278	2,700	700	1,300	2,000	—	—	—	—	1,573,116
Wisconsin.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
District of Columbia.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total.	3,974,384	1,296,492	34,179,119	1,448,765	3,010,443	43,423,743	36,300	26,305	81,815	149,330	207,428	160,897	266,996	63,017	7,660
															13,691,748
															59,412,934

THE FREEDMEN.—The report of the Superintendent of Freedmen's Schools contains the following statistics: The number of day and night schools was 2,118, with 2,455 teachers, and 114,522 pupils; besides these, there were 1,196 Sabbath schools, with 89,731 pupils. Of the total of 264,253 pupils, 192,227 are reported as having been slaves before the war. The average attendance of pupils in the day and night schools was eighty-nine thousand three hundred and ninety-six, being seventy-eight per cent. of the whole number enrolled. Pupils show a commendable perseverance in the pursuit of knowledge, fifty-nine per cent. being always present, and fifty-seven per cent. always punctual. Rapid progress in study is apparent; forty-three thousand seven hundred and forty-six being advanced readers; thirty-six thousand nine hundred and ninety-two studying geography; fifty-one thousand one hundred and seventy-two, arithmetic; fifty-three thousand six hundred and six, writing; and seven thousand six hundred and twenty-seven are in higher branches, showing the following gratifying comparison:—Increase of 1869 over 1868: Advanced readers, 4,168; geography, 5,797; arithmetic, 2,904; writing, 7,493; higher branches, 1,915. The freedmen assist in support of their schools to the extent of their ability. As their condition is improved, their willingness to contribute for educational, as they always have for religious interests, exhibits itself in the largely augmented amount paid for the support of schools. Forty-four thousand three hundred and eighty-six pupils paid \$106,866 19 for tuition, by far the largest sum yet reported; while many thousands of dollars were expended for board and salaries of teachers, and for construction of school-houses. In the 30 high and training schools the students preparing to become teachers, show good proficiency in study, with general aptitude for the duties of their coming profession. The larger proportion of the 3,377 pupils in these institutions will, undoubtedly, go forth to train other minds in knowledge. There are 17 industrial schools, having in all 980 pupils. Besides these, there are many normal and industrial classes in other schools, reported as irregular schools, where pupils are instructed in teacher's duties and domestic economy, with gratifying success.

MAINE.—The new plan of county supervision seems to be working well. The supervisors are said to be, with few exceptions, young and enterprising men, and their visits among the schools has naturally had the effect of rousing the teachers to greater zeal and activity. Whether the new enthusiasm will hold out remains to be seen. It is doubtful, however, that any great improvement in the teachers can be effected and the teachers retained, unless the State ceases to lag behind all others in the matter of teachers' wages. It may be that good teachers can be hired in Maine for an average of thirty dollars a month to men and twelve dollars to women, but we doubt it. The following comparative table of statistics for 1868-9, we find in an extract from the Superintendent's forthcoming report, published in the *Maine Journal of Education* :

	1869.	1868.	Increase.	Per cent.
Whole number of scholars between 4 and 21...	226,143	225,200	943	04
Number registered in Summer Schools.....	120,262	111,552	8,710	08
Average attendance.....	94,114	85,407	8,707	10
Number registered in Winter Schools.....	135,292	124,655	10,637	09
Average attendance.....	108,434	97,790	10,644	11
Per centage of average attendance to whole number.....	50	42	08	--
Number in Winter Schools who did not attend in summer.....	21,606	19,714	1,892	10
Average length of Summer Schools.....	9w. 2d.	9w. 2d.	-----	--
Average length of Winter Schools.....	9w. 3d.	9w. 1d.	2d.	--
Average length of schools for the year.....	18w. 5d.	18w. 3d.	2d.	--
Number of districts.....	4,012	3,632	380	10
Number of parts of districts.....	228	282	46	16
Number of districts with graded schools.....	184	150	34	24
Number of School Houses.....	4,019	3,719	300	08
Number of School Houses in good condition..	2,036	1,977	28	03
Number of School Houses built last year.....	121	93	59	--
Cost of the same.....	\$175,904 00	\$272,744 00	-----	--
Number of Male Teachers employed in summer.....	97	70	inc. 27	39
Number of Male Teachers employed in winter.....	1,968	1,815	153	08
Number of Female Teachers employed in summer.....	4,033	4,360	dec. 327	08
Number of Female Teachers employed in winter.....	2,200	2,012	inc. 188	09
Average wages of Male Teachers per month, excluding board.....	\$30 44	\$29 50	94 00	03
Average wages of Female Teachers per week, excluding board.....	3 04	2 94	10 00	03
Average cost of Teachers' board per week....	2 28	2 17	11 00	05
Amount of school money voted.....	792,815 00	598,094 00	194,721 00	33
Amount raised per scholar.....	2 93	2 65	28 00	11
Amount drawn from State fund.....	15,658 00	17,719 00		12
Amount derived from local funds.....	14,434 00	12,013 00		10
Amount paid for tuition in private schools, academies or colleges in the State.....	54,329 00	54,545 00		--
Amount paid for the same out of the State....	11,222 00	10,886 00	336 00	--
Amount expended for repairs, fuel, insurance, &c.	92,364 00	73,477 00	18,887 00	26
Amount expended to prolong schools.....	17,744 00	14,640 00	3,104 00	21
Amount paid to Superintending School Committees.....	20,087 00	18,350 00	17,370 00	09
Aggregate amount expended for schools.....	1,082,106 00	999,021 00	83,085 00	08

ENGLAND.—The report of the Committee on Education, for 1868-9, contains the following information of general interest: The increase in the number of inspected schools in England and Wales was 820, of which 25 were simply inspected: and in Scotland 161, of which 13 were simply inspected. The number of scholars present on the day of inspection, in schools receiving annual grants, had been increased in England and Wales by 114,378, of which 12,533 were evening scholars; and in Scotland by 18,301, of which 161 were evening scholars. The average number attending such schools had increased in England and Wales by 76,159, of which 9,319 were evening scholars; and in Scotland by 15,460, of which 321 were evening scholars. In schools simply inspected, the increase of children present at inspection in England and Wales was 2,398, of which 61 were evening scholars; and in Scotland 1,488, no return of evening scholars being made. The increase in the average number attending such schools in England and Wales was 1,566, of which 158 were evening scholars; and in Scotland 1,142, there being again no return for evening scholars. In England and Wales, the increase in the number of certificated teachers was 592; of assistants, 92; of pupil teachers, 1,315; in Scotland, there was an increase of 182 certificated teachers, and 353 pupil teachers, but a decrease of 23 assistants. After some general remarks on the various classes of schools—of which one is entirely independent of Government control, two only partially subject to it, and one alone in full connection with the department—the report proceeds to state that the average number of day scholars attending schools of this class, in Great Britain, during the year ending August 31st, 1868, was 1,163,368, or 4.6 per cent. of the estimated population for 1868. The number of scholars on the books of the same schools (1,685,168) was 6.7 per cent., and the number of scholars whom they would hold (1,914,440) was 7.6 per cent. of the same population. The maintenance of annual grant schools, during the same year, cost £1,552,542, of which £484,010 came from Government; £66,812 from endowments; £508,779 from scholars' fees; £492,941 from the voluntary contributions of 194,745 persons, who, having at heart the right education of their coun-

trymen, not only gave this large sum, but performed gratuitously all local duties in connection with the schools. In addition, £144,547 were subscribed for building schools, and £28,540 were raised for the support of training colleges, about £5,800 of which were paid as fees by students or their friends. During the last three years, an addition has been made to the annual average number of day scholars in annual grant schools, at the rate of 52,104 per annum, and an addition of 83,971 per annum to the number present on the day of inspection.

There were the year ending 31st August, 1868, 1,685,168 children on the registers of annually aided schools in Great Britain, of whom 747,898 were examined; 512,973 or 68·59 per cent. passed without failure. From the investigations of passes and failures in the respective standards, with regard to the age of the children examined, the conclusion is drawn that of four-fifths of those about to leave school, either no account, or an unsatisfactory one, is given by an examination of the most elementary kind; while with respect to those not examined, there are many reasons for thinking these less proficient than those examined.

CHINA.—It has been said that the Imperial College at Peking has been given up, as Prince Kung's progressive policy was thwarted by the Conservatives. Professor Martin, of that college, says that such is not the case. The Chinese ministry have no thought of giving it up. Its first efforts were a partial failure, owing to the fact that the first students selected were excellent scholars in Chinese classics, but too old to learn French or English as a medium for scientific instruction. Some of them were over 50 years old, and scarcely any less than 30. Of course they failed, and had to be dismissed. Now younger scholars will be taken, and foreign languages will not be depended on as the medium of instruction except in the highest branches. Native teachers will be employed when possible. There are five foreign professors on the ground, and others will be added as they are needed. Prince Kung refused to allow the college to be removed to Shanghai, and hopes to make it worthy of his name and patronage.

CURRENT PUBLICATIONS.

HAD Mr. Evans been able and willing simply to edit Prof. Müller's lectures without any interpolations of his own (whatever be their nature), we should have unquestionably a highly valuable and interesting book. There are passages in it which, notwithstanding their apparently mutilated condition, we have read with the most intense interest. But had the lectures really been published as delivered, they still would be hardly available for an *American* public. The standpoints and requirements of a German and an American audience are too different to allow the same lecture to do for both. What the German student already knows, or is supposed to know, when he is attending university lectures on his own literature, is just what the American student wants to learn; and the details the German student has to learn are just those for which the American student cares little or nothing. Even the most thorough-going changes would be insufficient to make lectures, calculated for the one of these audiences, palatable or useful to the other. Add to this the fact that we are thoroughly left in the dark whether Prof. Evans intended his book for scholars, or for students and beginners, since he did not favor us with a preface. If he intended it for *scholars*, he omitted far too much from Prof. Müller's lectures; if he designed it for *students*, he *retained* far too much, and added not nearly enough, if it is allowable to call *adding*, what ought to have been an entirely different treatment in the form and substance of almost every section. That he kept out too much for *scholars* a very superficial survey of the book will show. Before all other things he ought not to have left out what German professors and authors call "the literature" of the different chapters, which means accurate and complete references to all authors that have written on the subject. It appears from Mr. Wiemann's notes that these references were very elaborately and accurately given by Prof. Müller. And indeed what should a scholar or even a student do without them? They are the true key to the whole store of knowledge, of which the

age disposes. Just this opening of the gates to all that the time knows on a certain subject, is the great feature of German university lectures. For the Professor can impart only a very small fraction of this knowledge; he can do no more than inspire the student, and enable him to open the lock; or in other words, he can only deliver him the key to it. It is just this key which Mr. Evans has withheld from the student. But there are other omissions almost equally bad. All of Professor Müller's admirable discussions on the *metrums* of the different poetical works are omitted. How essential it is to know these metrums, every scholar will appreciate who knows for instance the importance of the *Nibelungen Strophe*. The enumeration of the different poets of the periods (to prose writers Mr. Evans almost always gives the cold shoulder) is fragmentary, and often important writers are omitted, while unimportant ones are not only carefully mentioned but discussed up to the last details of their writings. Thus in the ancient period only some of the poetical works are mentioned (the *Wessobrunn prayer*, *Muspilli*, the *Heliand*, *Otfried* and the *Ludwigslied*); the whole prose literature (*Kero*, *Notker*, *Wileram*, the *Glosses*, etc.) being left out, in place of which Mr. Evans has favored us with a review of the *Latin* poems of this period, an episode which he has almost literally copied from Weber's history of German literature (p. 4). If any one should look for a delineation of the general character of the period, and a general description of the language and dialects in which the literary monuments of that time have been written, he would look in vain. Nor are we informed where we may find all or any of these monuments in print, not a single edition even of a single author being mentioned.¹ That in the modern literature, the "present time" is almost entirely left out, has been already remarked.

If Mr. Evans intended his volume to be a text-book for the reading of beginners or advanced students, we are afraid that it will prove no less useless for this purpose, both in regard to style and grammar, and to the subjects treated. For Prof.

¹ Of the existence of such indispensable and important collections as *Griff's althochdeutscher Sprachschatz*, the reader will not find a word in Mr. Evans's book.

Müller's lectures, and of course Mr. Evans's book, presuppose on every page a student already familiar not only with the chief features of German literature, but also with the whole political history of the country. Instead of being introduced to these rudiments, the student is lead from one specialty to another, and overwhelmed with a mass of detail which Mr. Evans himself was evidently unable to control. Even a German student could understand these details only after a previous drill in an elementary handbook, a drill which the German, but not the American, students have had in their preparatory courses. To this must be added the utter confusion which prevails in the book, owing to the fragmentary and loose way in which Mr. Evans has taken his notes, and to his indiscriminately inserting into the text those occasional and episodic digressions which lecturers are in the habit of introducing wherever it is convenient, without paying a strict regard to systematic order. Of this confusion we give here one striking example out of many. In the literature of the 12th century he first reviews the religious poems of the period; and then abruptly under the startling heading "difference between *Thiersage*¹ and fable," continues thus (p. 30):

Of the *Thiersagen* there are in the 12th century two Latin works (Isegrimus and Reinhardus), and one fragmentary German poem (Reinhard of Henry the Glicheser). Similar representations of the brute creation adorn the Minster of Freiburg, the Strassburg Minster, and often are found in the cathedrals of the middle ages. The *ecbasis* of the 10th century² is the weakest of these poems, and not yet epically developed; for the *Thiersage* is distinguished from the fable in three points: 1. In the fable the "lesson" (*die Lehre*) is the main point; in the *Thiersage* the lesson is entirely wanting; the narrative is the main thing, it intends no satire, but contains a ridiculing of the common course of the world by the conscious acts of animals. 2. The fable lends to the stones, plants, etc., a conscious life; the *Thiersage* occupies itself only with animals, and especially with large animals. 3. The fable assigns to the animals only generic names (fox, wolf, lion, bear); the *Thiersage* gives to them

¹ We wonder how Mr. Evans, or the American student would translate this expression. We confess our own inability to do it.

² The German text has: *Die Ecbasis des 10 ten Jahrhunderts*. Prof. Evans, or rather his lecturer, means the work of an unknown author, probably from the 10th century, and entitled "ecbasis."

individual and epic (!) names (Reineke, Isegrimm, Noble, Braun). Antiquity had no taste (*keinen Sinn*) for nature, and hence (!) no *Thiermährchen*,¹ only *Thierfabeln*; and this lower order of poetry was mostly cultivated by slaves (*Æsop*). The Franks have first introduced the *Thierepos*;² then the French (le Roman du Renart) and Dutch (Reinart) have taken it up. In more recent times Goethe has composed this *Sage to drill himself in the hexameter*. Kaulbach's illustrations of it are admirable; except that he has not entered into the originally naïve spirit of the poem, inasmuch as he has put in satiric features; the garments too, are not adapted to beasts; they ought to remain beasts. It cannot be denied that as early as the 12th and still far more in the 13th century, these legends were used in making attacks on the avarice of the clergy and the corruption of convent life; even the head of the church was not spared.

Old *Latin* Isegrimus of the 13th century, Henry the Gliche-ser, ecbasis, the cathedrals of Strassburg and Freiburg, the Thiersage with its wanting lesson and not intending a satire; Isegrim again, Noble, Braun, Reineke, classical antiquity with its wanting taste for nature, the Franks, the French, the Dutch, old *Æsop*, Goethe and his hexameter-drill, Kaulbach and his erroneous though admirable illustrations, the avarice of the clergy, the Pope³—and all this to teach the student the history of German literature in the 13th century.

As for Mr. Evans's style and grammar, we have already presented so many specimens, that it seems quite superfluous to make new additions.⁴ But we must remark that the book is literally loaded with words and expressions which an American could not possibly understand without a commentary. Often Prof. Müller found it necessary to explain certain expressions to his *German* audience, but Mr. Evans disdains such expedients, probably from an habitual pre-

¹ Again it would be pretty difficult for the Professor to favor us with a translation of this word.

² Another poser.

³ The Œcumenic Council might have been brought in with advantage. Several "*Thiersagen*" make palpable allusions to these councils and their members. The Spanish gunboats too, might have furnished some striking points for "*Thiersage*."

⁴ However, we present the reader with some more choice bits: In *demselben Jahre* fallen die ersten Scenen aus Faust, p. 175. Ritterliche Bildung bestand in der Idee der persönlichen Ehre, in Freigebigkeit und Tapferkeit, in keiner Verletzung der Kampfetikette, den Wehrlosen nicht auszugreifen, ritterliches Wort halten, etc. Here the verb *bestand* has four different constructions, only the first of which is correct. Page 37,—aller diesen Grossen, p. 74,—Katherine, p. 160,—Diese Schriften sind nicht anders denn als ganz beiläufig Gegenstände der National-Literatur, p. 9,—Das Leben Marie, p. 29,—Des Maies, p. 40,—Phäton, p. 138,—Die deutsche Dichtung schätzte fremde Productionen, p. 155, etc., etc.

judice against all kinds of "ponies," leaving thus the American reader in a dilemma out of which no dictionary, no grammar, and perhaps not many teachers will help him. It is true that an American reader would get quickly enough over such blunders as "Heyse's (instead of Heyne's) Vorlesungen über Homer" (p. 165), but what shall he do with *St. Gral* (p. 42), to explain which Mr. Evans makes several futile attempts, or with the expressions *Stäte* and *Unstäte* (p. 159), which are duly explained by Professor Müller, or with the ancient word *Leiche* (p. 26) which Mr. Evans erroneously explains as historical lyric poems; or with Henry *dem Glicheser*, a word coined by Mr. Evans himself¹ (p. 30), or with the words *Aufklärungsliteratur* (p. 151), *kraftgenialisch* (p. 159), *arkadische Träumereien* (p. 66), *kleinmalerisch* (p. 192), *durchsichtiges Brustleiden* (p. 202), or with the *ästhetische Zucht* (p. 202), for which, according to Mr. Evans, Auerbach's *Landhaus am Rhein* is distinguished; or the *Nürnberger Trichter* (p. 108); *stumpfe* and *klingende Reime* (p. 42). Thus no American could possibly understand what is meant by: *Schiller and Goethe's Natur waren zwei Potenzen der vollkommenen Menschennatur* (p. 185). Sensational assertions of this kind which sound like something, but in reality are mere nonsense, ought to have been left behind in those German books from which they have been borrowed.

Since Mr. Evans did not attempt even at a single place to give a hint to the American student concerning the meaning of such words and phrases, we are almost of the opinion that he did not at all intend his book for the *American* public, but issued it as a kind of poser for the *German* scholars of this country, to test whether they would have brains enough to recognize the native style of their well beloved and fondly remembered Professors, even under an American disguise. If this is the case (and charity disposes us to assume it), we expect that his hopes are likewise doomed to disappointment. But at any rate let us see how he will clear up our perplexity.

GUSTAVUS FISCHER.

¹ There is a middle German word *Glichesaere*, or *Glichsenaere*, which Prof. Müller found it necessary to explain by the Latin word *simulator*. Mr. Evans probably did not find this word in his German dictionary, and therefore very properly left it out.

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VOICE AND ITS EDUCATION.

NEXT to manner, perhaps side by side with it, Voice may be the teacher's greatest help or hindrance in the management of a school. There are voices almost sufficient in themselves to keep a school in constant, cheerful, harmonious action; and others whose jarring harshness tends to irritate the best disposed of pupils, and to make government an exhausting strain on teacher and pupil. We have in mind a teacher of rare governing ability, whose command of his classes is manifestly due far more to the persuasive influence of a decisive yet agreeable voice, than to any conscious putting forth of power, or any exercise of authority on his part. Indeed, it is the possession in voice and manner of this sort of irresistible power—irresistible because its exercise gives no occasion for resistance—that marks, if it does not condition all school government that is at once easy and good. For the teacher, more even than for the physician, “a good voice—calm in tone, and musical in quality, is one of the essentials;” and it is one that every teacher should seek to acquire and improve, not only for his own sake, but for the sake of the children who, consciously or unconsciously, are sure to imitate him. To this end the following study of Voice by an English essayist may be profitably suggestive as well as entertaining:

Far before the eyes, or the mouth, or the habitual gesture;

as a revelation of character, is the quality of the voice, and the manner of using it. It is the first thing that strikes us in a new acquaintance, and it is one of the most unerring tests of breeding and education. There are voices which have a certain truthful ring about them—a certain something, unforced and spontaneous, that no training can give. Training can do much in the way of making a voice, but it can never compass more than a bad imitation of this quality; for the very fact of its being an imitation, however accurate, betrays itself like rouge on a woman's cheeks, or a wig, or dyed hair. On the other hand, there are voices which have the jar of falsehood in every tone, and that are as full of warning as the croak of the raven, or the hiss of the serpent. There are, in general, the naturally hard voices, which make themselves caressing, thinking by that to appear sympathetic; but the fundamental quality strikes through the overlay, and a person must be very dull indeed who cannot detect the pretence in that slow, drawling, would-be affectionate voice, with its harsh undertone and sharp accent, whenever it forgets itself. But, without being false or hypocritical, there are voices which puzzle as well as disappoint us, because so entirely inharmonious with the appearance of the speaker. For instance, there is that thin treble squeak we sometimes hear from the mouth of a well-grown, portly man, when we expected the fine rolling utterance which would have been in unison with his outward seeming; and, on the other side of the scale, where we looked for a shrill head voice, or a tender musical cadence, we get that hoarse chest voice, with which young and pretty girls will sometimes startle us.

Nothing betrays so much as the voice, save, perhaps, the eyes, and they can be lowered, and so far their expression hidden. In moments of emotion, no skill can hide the fact of disturbed feeling, though a strong will and the habit of self-control can steady the voice when else it would be failing and tremulous. But not the strongest will, nor the largest amount of self-control, can keep it natural as well as steady. It is deadened, veiled, compressed, like a wild creature, tightly bound and unnaturally still. One feels that it is done by an effort, and that if the strain were re-

laxed for a moment, the wild creature would burst loose in rage or despair, and the voice would break out into the scream of passion, or quiver away into the falter of pathos. And this very effort is as eloquent as if there had been no holding down at all, and the voice had been left to its own impulse, unchecked. Again, in fun and humor, is it not the voice that is expressive, even more than the face? The twinkle of the eye, the hollow in the under lip, the dimples about the mouth, the play of the eyebrow, are all aids, certainly; but the voice! The mellow tone that comes into the utterance of one man, the surprised accents of another, the fatuous simplicity of a third, the philosophical acquiescence of a fourth, when relating the most outrageous impossibilities—a voice and manner peculiarly transatlantic, and, indeed, one of the Yankee forms of fun—do not we know all these varieties by heart? Have we not veteran actors, whose main point lies in one or other of these varieties? And what would be the drollest anecdote, if told in a voice which had neither play nor significance? Pathos, too—who feels it, however beautifully expressed, so far as the words may go, if uttered in a dead and wooden voice, without sympathy? But the poorest attempts at pathos will strike home to the heart, if given tenderly and harmoniously. And just as certain popular airs, of mean association, can be made into church music by slow time and stately modulation, so can dead-level literature be lifted into passion or softened into sentiment by the voice alone.

Certain voices grate on our nerves, and set our teeth on edge; and others are just as calming as these are irritating, quieting us like a composing draught, and setting vague images of beauty and pleasantness afloat in our brains. A good voice, calm in tone and musical in quality, is one of the essentials for a physician; the “bedside voice,” which is nothing, if it is not sympathetic by constitution. Not false, not made up, not sickly; but tender in itself; of a rather low pitch, well modulated, and distinctly harmonious in its notes: it is the very opposite of the orator’s voice, which is artificial in its management, and a made voice. Whatever its original quality may be, the orator’s voice bears the unmistakable stamp of art, and becomes

artificiality; as such it may be admirable—telling in a crowd, impressive in an address—but overwhelming and chilling at home, partly because it is always conscious, and never self-forgetting. An orator's voice, with its careful intonation and accurate accent, would be as much out of place by a sick bed as court trains and brocaded silk for the nurse. There are certain men who do a good deal by a hearty, jovial, fox-hunting kind of voice—a voice a little thrown up, for all that it is a chest voice—a voice with a certain undefined rollicking sound in it, and eloquent of a large volume of vitality and physical health. The clerical voice, again, is a class voice; that neat, careful, precise voice, neither wholly made nor yet quite natural; a voice which never strikes one as hearty, or as having a really genuine utterance, but which yet is not unpleasant, if one does not require too much spontaneity. The clerical voice, with its mixture of familiarity and oratory, as that of one used to talk to old women in private, and to hold forth to a congregation in public, is as distinct in its own way as the mathematician's handwriting; and any man can pick out, blindfold, his man from a knot of talkers, without waiting to see the square-cut collar and close, white tie. The legal voice is rather a variety of the orator's than a distinct species—a variety standing midway between that and the clerical, and affording more scope than either.

The voice is much more indicative of the state of the mind than many people know of or allow. One of the first symptoms of failing brain power is in the indistinct or confused utterance; no idiot has a clear or melodious voice; the harsh scream of mania is proverbial; and no person of prompt and decisive thought was ever known to hesitate or to stutter. A thick, loose, fluffy voice, too, does not belong to the crisp character of mind which does the best active work; and when we meet with a keen-witted man, who drawls, and lets his words drip, instead of bringing them out in the sharp, incisive way that would be natural to him, we may be sure there is a flaw somewhere, and that he is not what the Americans call "clear grit" and "whole-souled" all through. We all have our company voices, as we all have our company manners, and we get to know the

company voices of our friends after a time, and to understand them as we understand their best dresses and state service.

The person whose voice absolutely refuses to put itself into company tone, startles us as much as if he came to a state dinner in a shooting-jacket. This is a different thing from the insincere and flattering voice, which is never laid aside while it has its object to gain, and which affects to be one thing when it means another. Though one of the essentials of a good voice is its clearness, there are certain lisps and catches which are very pretty, though never dignified; but most of them are exceedingly painful to the ear. It is the same with accents. A dash of brogue, the faintest suspicion of the Scotch twang, even a very little American accent—but very little, like red pepper, to be sparingly used, as, indeed, we may say with the others—gives a certain piquancy to the voice. Of all the European voices, the French is perhaps the most unpleasant in its quality, and the Italian the most delightful. The Italian voice is a song in itself, not the sing-song voice of an English parish schoolboy, but an unnoted bit of harmony. The French voice is thin, apt to become wiry and metallic; a head voice for the most part, and eminently unsympathetic; a nervous, irritable voice, that seems more fit for complaint than for love-making; and yet how laughing, how bewitching it can make itself! There are some voices that send you to sleep, and others that stir you up; and the French voice is of the latter kind, when setting itself to do mischief and work its own will.

The cultivation of the voice is an art, and ought to be made as much a matter of education as a good carriage or a legible handwriting. We teach our children to sing, but we never teach them to speak, beyond correcting a glaring piece of mispronunciation or so; in consequence of which we have all sorts of odd voices among us—short yelping voices like dogs, purring voices like cats, croakings, and lispings, and quackings, and chatterings; a very menagerie, in fact, to be heard in a room ten feet square, where a little rational cultivation would have reduced the whole of that vocal chaos to order and harmony, and made what is now painful and distasteful, beautiful and seductive.

SYSTEMATIC TECHNICAL EDUCATION.**PART THIRD.****PHILOSOPHY OF HUMAN NATURE.**

FOLLOWING close on the study of matter, of organization, and of life, come the studies of mankind, of human thought, of human choice, of human action.

To train the human mind to think rightly and know truly; to train the human will to choose wisely and act well, are practical problems of the highest value to the individual and to humanity. But to train the mind to right thinking, one must know the laws of thought; and to train the mind to true knowing, one must know the nature of true knowing and of false knowing—the ways of finding truth and of falling into error. To regulate human action and influence human choice, one must thoroughly know the ends and means among which one has to choose; the powers and instruments through which one has to act. Thus all human life and all human culture in thought, knowledge, choice and action, has to form the matter of a careful study of the matter world. Hence a new department of our university study, the study of the mind world.

PHILOSOPHY OF MIND.**PSYCHOLOGICAL SCIENCES.**

<i>Metaphysics.</i>	<i>Ethics.</i>
Thought.	Choice.
Knowledge.	Action.

Hidden thought or hidden knowledge, stored up in one human mind, might go to the grave, lie buried there, and fail to benefit humanity. To word our thought, to communicate our feeling, to tell our meaning, to express our wish, to show our plan and purpose, to link other human beings to ourselves in thinking, knowing, choosing, and acting—that makes all mankind one. Thinking is divine; it requires speech to make it human. Knowing is good; it requires communication of knowledge to make it useful. Choice

requires a reason ; action a motive. Speech alone can communicate our reason, and earn the approbation of our race. Speech must tell the purpose of our action, explain our way of acting, and earn the co-operation as well as the sympathy of our fellows. The art of converting hidden thought, of transplanting the thoughts of our bosom into the hearts of others, of transferring the knowledge of the past into the present, the knowledge of the present into the far future, the knowledge of the near into the distant ; all that vast apparatus which human nature has struggled for, and human ingenuity contrived to link one man to another, and distant time and one place to another—that great apparatus of human speech is the subject of another philosophy. But we should be wrong if we confined our notions of human speech to mere vocal articulation, to the characters of common writing, or the typography of modern books. Speech is but one action ; writing but another action of human life ; and all those human actions which express the meaning of the thinker, the intention of an action, or the purpose of a work, are equally material incarnations of thought, and belong to the large science of expression. Literature is but one of the fine arts. The human countenance, the human eye and hand and form, the human attitude and motion—all the graceful pantomimic art, is another language of thought and feeling. There is a grace of attitude and a poetry of motion, more expressive of internal beauty, and hidden thought and feeling, than types or articulate sounds. Then there is the poetry of sound, the language of music ; a language in all tongues common to the human race ; a language that moves even the rude mind of the unlettered barbarian, subdues the ferocious beast, and stirs the very stones. How color becomes the language of thought and a vehicle for the expression or perpetuation of beauty ; how the pale marble can image forth the qualities of a divine soul ; how perpetual bronze can lend the forms of melted metal to give immortality to beauty ; how stone and marble columns and arches, embodying the exquisite harmonies of music, can sing through untold centuries, hymns of Divine praise ; how all man's acts form monuments of his thoughts, and records of all his ways ; how all matter can manifest all mind,

human or Divine—it is the business of the philosopher of human expression to make plain; and the duty of the teacher of science in literature and science in fine art, of science in reasoning and science in persuasion, to lay down the ways, and make plain the plans and means. How thought develops into language, language into act, act into feeling, feeling into poetry, and reason into rhetoric; to know all that, is to know what the poets of Greece—her architects and sculptors, her philosophers and orators have handed down to us of that classic era of human refinement. We have therefore in this branch of philosophy, pregnant themes of thought, feeling, and action.

PHILOSOPHY OF SPEECH.

SCIENCES OF LITERATURE AND ART.

<i>Expression.</i>	<i>Method.</i>
Language.	Logic.
Æsthetics.	Rhetoric.

The study of humanity has two methods: the study of mankind as one, and the study of mankind as many. As man is now presented to us in the world, he can scarcely be considered as *one*. The Negro, the Hindoo, the Greek, the Jew, the Saxon, the Celt, and the Anglo-Saxon, can never be called, or studied, or judged as one.

Much that would be true of any one race or family of mankind would be false of another. The ways of the Chinese race, the most numerous family of men, are utterly apart from those of all other kinds of men. Their thinking is different, their morality is different, their language different, their art different. If, then, one would improve a nation, or develop a race, one must first study the nature of that race, and the history of other races. One must know the defects of the race and its strong points, and the legislator, patriot, parent, or pedagogue, must with painstaking study strive to make good the wants of the race, physical, intellectual, and moral, by training, food, condition, education, knowledge, and discipline. Races improve, develop, degenerate, die out. They remain pure; they are mixed and crossed; they are cultivated, or are neglected; governed well, ill governed, or governed not at all.

Thus the greatness of a nation may be achieved if for one or two generations it possess and follow great and good men. It may decay and degenerate when virtue and wisdom cease to rule. Where wise men rule, institutions are founded, established, and perpetuated, which form the people to industry, frugality, refinement, patriotism, intelligence, self-denial, order, virtue, and religion. When evil rule, selfish rule, or no rule predominates, people decay, virtue fades, luxury reigns, feebleness follows, religion subsides into form, empires are extinguished, and nations fall into chaos.

The story of the human race then, its original families, its noble nations, its patriotic institutions, and its religions, true and false,—the story of the human race is the most interesting of philosophies. Wisely told, history gives to each man the lesson of human life. Man as an individual, feeble and undeveloped; man in a cultured nation, wise, great, and good. Here then we have a field of knowledge covering all human time, spreading over the surface of the earth and sea, and comprehending all interests—past, present, and future, family, race, and nation—to man most dear.

PHILOSOPHY OF HUMAN STORY.

THE SCIENCE OF HISTORY.

<i>Ethnology.</i>	<i>Politics.</i>
Race.	Institutions.
Nation.	Religions.

Founded on the story of the past, each man, each nation, each legislator, each ruler, has to think out with wisdom and foresight, his own life, his children's destiny, the progress of his own community, the welfare of his own nation, its progress and its liberty. To have lived a life of virtue and wisdom, each man must have lived a life of usefulness to others, as well as of improvement to himself.

How each man can help not himself merely, but be useful to his neighbors, helpful to his community, valuable as a citizen, and how the benefits of his own time and place may be secured to his fellow countrymen in coming times and spreading place; that it is the business of each patriot

to think out, of each legislator to contrive the way, and each government, administration, or governor, to carry into effect.

The organization of human society is the foundation of the destiny of all the human beings forming that society, now, and in time to come. All government must be a government either of the wise, the ignorant, or the foolish; the able or the incompetent; the honest or the corrupt. A nation of men that knows not how to choose the wise, the fit, the experienced, the patriotic, the pure, from among her citizens, to place them in the front as her patterns and leaders, and to support the heads of the people in the development of the higher and nobler destinies of the nation—such a nation must be content to be treated as it deserves, to be told only that which is agreeable, to be led to do only that which is pleasant, to have its best interests bought and sold as itself buys and sells its own votes, and to have all the great interests of the coming generation and the coming time subjected to the narrowness, the meanness, the party, and the selfishness of political degeneration. The organization of society therefore, not merely for present security, but for the culture of the coming generation; not merely for the enjoyment of present wealth, but the maintenance of future strength, is a subject for the study of the highest minds, for the ambition of the highest aims.

PHILOSOPHY OF SOCIETY.

SCIENCE OF POLITICS.

<i>Legislation.</i>	<i>Administration.</i>
Security.	Wealth.
Culture.	Strength.

In thus coming to the conclusion of the list of philosophies which are to be taught in our university, it will be readily admitted that some of these knowledges, if not all, are necessary to every well-educated man of the world. The first philosophy, the philosophy of the material world, is necessary to every man whose life is to be a struggle with matter, whose duty it is to be to transform, shape, and resist or direct its forces.

The second philosophy, the philosophy of human nature,

is still more essential to what is called a man of the world ; for if it be hard to understand, control, direct, and use dead matter, it is much harder to train, cultivate, mature, ennoble, and guide the matter of society. Nevertheless, of all things in the matter-world, formal, physical, or living, none are so important, so interesting, so material to human life, as the study of mankind, past, actual, possible, and future.

Which of all these philosophies is to be individually taught to each individual student, as the most important matter for him, is a subject for future consideration ; suffice to say here, that there are few of those matters of which any wise man can afford to be utterly ignorant, and every wise man will readily admit that to be profoundly master of any, he must be content to master but very few. The wisdom then to be shown in the education of a man according to this programme, will consist in the judicious selection from among the many things of which he should know something, and the few of which he should know everything.

But it is necessary to notice the grave omissions of a multitude of important knowledges which are not included in our philosophy. An enemy to our philosophy will notice that we have omitted the knowledge of God, and that ours is therefore a Godless university. He will further notice that all the mysteries of the medical profession, and the important subject of human health, find no place in our school, and therefore he will be able to call us a university of misanthropists. Thirdly, he will say that we are anarchists, for the whole philosophy of that industrious body, the members of whose active profession fill every corner of English society, find no training in our university, and that, therefore, lawyers are excluded from its privileges. To all this there is a simple answer. We have not the slightest objection to educate lawyers in the laws of honesty and truth ; to teach medical men the laws of human health ; and to teach theologians the nature and laws of God. But we abstain from presuming to do so, because these are the ancient professions for which our ancient universities have been provided. We desire not to trespass upon the slightest portion of their ancient ground. Our philosophy consists merely of the subjects contained in the following table.

HUMAN KNOWLEDGE.
KNOWLEDGE OF MATERIAL NATURE.
 THE SCIENCES.
 1. The Mathematical Sciences.
 2. The Physical Sciences.
 3. The Geographical Sciences.
 4. The Biological Sciences.

SPECIAL KNOWLEDGES.

Philosophy of	Sciences.	Departments.	Divisions.	Phil'y of	Sciences.	Departments.	Divisions.
Form . . .	Mathematics.	{ Calculus . { Geometry .	{ Quantity. { Number. { Form. { Place.	Mind. . .	Physiology	{ Metaphysics { Ethics . .	{ Thought. { Knowledge. { Choice. { Action.
Substance . .	Physics . .	{ Mechanics. { Chemistry .	{ Matter. { Force. { Elements. { Compounds.	Speech. .	{ Literature { and Art. .	{ Expression . { Method . .	{ Language. { Taste. { Logic. { Rhetoric.
Creation . .	Cosmology	{ Geodesy . . { Geology. .	{ The Heavens { The Sea. { The Earth. { Under the { Earth.	Story . .	Histories	{ Ethnology . { Politics . .	{ Races. { Nations. { Religions. { Institutions.
Life . . .	Biology . .	{ Anatomy. { Physiology .	{ Vegetable { structure. { Animal { structure. { Veg'table life { Animal life.	Society	Politics . .	{ Legislation . { Administra- { tion . . .	{ Security. { Culture. { Wealth. { Strength.

THE SPIRIT OF SECTARIAN EDUCATION.

IN an uncommonly sensible editorial discussion of the Public School Question, in *The Living Church*, W. G. S. gives a definition of Sectarian Education that is worth keeping in mind now when there is so much cant afloat in regard to the alleged irreligious character of our Public School instruction.

“The principle at the root of all sectarian education,” he says, “whether Jewish, Anglican or Roman Catholic, is the same. It is, that the parents hold so tenaciously to their sectarian peculiarities that they withdraw their children from the prevailing culture of their generation for fear that these peculiarities may be obliterated. Sectarianism is the spirit which takes one-sided views of truth, and looks at these through a magnifying glass, which not only exaggerates them, but also shuts out all others. Its error and its wickedness consist in this, that it withdraws its adherents, in order to maintain and conserve these partial and exaggerated views, from the organic life of the whole Church and the entire human society. This is the true spirit and the true definition of sectarianism, whether it is practiced by those who are avowedly sectarian, or by those who declaim most loudly about Catholicity. Over against this is the broad stream of intelligence, investigation, discovery, enlightened interest in all things, which promise wider knowledge, or higher development of the human faculties. This stream is the aggregate of the best thought, and the highest endeavor of the time. It carries in its bosom much food for the satire and the invective of those who love to turn up the reverse side of things. It brings terror to all who hold to traditions and not to ideas; to them it is undoubtedly “destructive,” in the strictest sense of the word. It brings broad and generous standards of judgment, so that to those who have fixed a procrustean bed on which everything must be stretched, it seems “latitudinarian.” It gives to those who once drink of it a thirst for knowledge, and truth, and thought, which increases with every draught, and so, to those who have never felt this

thirst, it seems to be a "poison." The man who has once plunged into it, never is willing to come out again, and so, to those who inhabit the sheep-folds upon the shore, it seems a tide which bears on to "ruin" and "death." They cannot, therefore (to keep up the metaphor), permit their lambs to wander freely on its shores. They stand, themselves, aghast at its mighty force, and at its incomprehensible fascination, and so they hasten to construct strong barriers to restrain the little ones, and are eager to indoctrinate their young with their own wholesome horror of what is "modern" and "progressive." That is sectarian education. It withdraws any religious earnestness which the sects really have from the prevailing current of opinion, where it is most sorely needed. It separates religion from civilization, and divides religion into the creeds of a hundred discordant communities. It teaches men to swear by the traditions of that little community in which they were born, and to pronounce all its petty watchwards, instead of teaching them to be open, unprejudiced, and free, in their consideration and judgment of all the contributions which each can bring to the sum of our best convictions. It aims to perpetuate and accentuate religious differences instead of bringing about unity of conviction by an unprejudiced examination of evidence. It is a confession of weakness of any Church or sect to adopt this policy. It can only do so upon admitting: 'We find that, if we leave our children to grow up without strictly inculcating our doctrines upon them, they never adopt those doctrines, upon a free conviction, in after life.' "

Further on, after a review of the opposing policies of education now pressing upon the country, closing with a thorough justification of the policy of a purely secular system for the public schools, W. G. S. adds:

"We may now be asked: 'But do you not believe in religious education?' Indeed we do, and what is more, we believe in education in religion, which is a very different thing, and which is one of the great wants of our time. What is the reason that so many men now-a-days part at a single wrench, when they grow up, from the religious education of their boyhood? It is simply that the traditions

which are inculcated into them in their youth are not found to fit into the theories and principles of life, of whose truth they become convinced in their manhood. The remedy for this is, not church education in secular matters, but sterling church education in religion, which shall give an intelligent position to religion in that same world of thought to which the mature man must inevitably be introduced. As it is, true education in religion is lost, because the attempt is made to throw this duty upon secular schools, and any genuine secular education is lost where the attempt is made to teach religion in secular schools. Any one who has had to examine youth of both sexes for admission to high schools knows that those who come from the sectarian schools are rarely prepared to enter classes with others of the same age who have followed the public school course. Any one who has examined boys for admission to college, in any institution which draws its students from a wide area, and from all sorts of schools, knows that the public schools provide the best prepared, most intelligent, and most roundly cultured applicants. If there is any charge of 'cramming' to be raised against any one class of schools more than another, it certainly is not the public schools which have to fear it."

Inferiority in secular instruction we may add is not the only failing of sectarian schools as a class. We believe it to be the experience of public school teachers generally, that as a rule—to which, of course, there are exceptions, but it is the rule nevertheless—a boy who returns to the public schools after a year's attendance at a private or parish school, is not only behind his class in scholarship, but demoralized in conduct. There is much to find fault with in the public schools; yet with all their failings they are, on the whole, the best schools we have. Their pupils may imbibe less of the imaginary "religious atmosphere," so much prized on paper by sectarians, but they imbibe more of the spirit of humanity, which is better. They learn to respect, if not to love one another, irrespective of religious or other class distinctions. Class for class, they behave better; and, we believe, with equal social advantages they make better, because broader, more tolerant, and less bigoted, citizens. The character of the

average instruction given in sectarian schools, more especially in the schools of the Episcopal church, by no means the worst of the class, is well described by W. G. S., who sums it up as "a fair *Sunday-school* education, with a smattering of withered prejudices on matters of history, science, and art."

In view of these facts we hope that the Bible Question will be persistently pressed until the public schools are thoroughly pruned of the sectarian elements that have been so unjustly and unwisely grafted upon them; until they have become in fact what they are in theory and should be in equity, purely secular.

ONE EFFECT OF TEACHING DRAWING.

WHEN the student has mastered the primary elements of form which he finds combined in such simple natural objects as leaves, shells, flowers, fir-cones, fruits, or frost-crystals, and has drawn these with careful attention, and consequent pleasure and interest, what will be the results of these efforts and experiences, when he is engaged with other things than drawing?

Is it needful to say that he will regard all that may surround him with just that sort of notice and attention which his training has called into play? He must now infallibly notice the more or less perfect roundness of his snow-balls, as well as the mere fact of their being snow-balls. The dead leaves he collects for a bonfire will sometimes draw his eyes to their veins, all true even in death: they will be something more than fuel; something in their angles of geometry, something of botany, something of beauty, will at a flash be associated, and a memory of the association will be left. Will he not see meadows, cattle, hills, woods, and clouds with a more patient and more careful eye? and seeing these more carefully and patiently, will he not find more in them to attract and entertain him? When he leads his fellows up a hill, and the landscape spins round and

opens upward, there will mix with the rapture of running some glimmering consciousness of that moving horizon he learned of in the last drawing lesson. You have made him an observer, in short, and can see the beginning of his discoveries, but not their end.

For he will now incline unconsciously to pursue other routes of study than the definitely prescribed ones which are dignified but restricted by the name of this or that science. Observing nature accurately, and with a freshness and originality peculiar to youth, he may initiate new modes and methods of inquiry, hereafter to take rank as sciences; for the hard lines of existing science are merely an arbitrary limit, a mark (could we but see but it) of a niggardly inadequate entertainment of natural phenomena. The irreconcilable differences of physicists and metaphysicians, of phenomenologists and psychologists, witness the want of a science which shall occupy the position of a middle term, or harmonizing medium; a science comprehending within its scope all the capabilities of man. We may not hope to see it, but we may hope to qualify our posterity to find it, by emancipating the young promise of that posterity from some arbitrary fetters of thought, and by giving all its faculties fair play.

Pending the feasibility of this, let us look at the probable condition of our school-boy, whom we have subjected to such novel discipline as a reverencing of art implies.

He has learnt to see all things that he copies (and you set before him objects representatively various) as things at least worthy of attention, and unfolding interest in proportion to the amount of attention bestowed upon them. Free and at his own disposal, his observations of each surrounding thing will and must be accurate in proportion to the attentiveness of habit his studies have demanded and secured. And the sense that has been most habituated to accuracy will be the medium of most exact observation and intelligence, not only of such objects as have formed part of his study, but also of all objects besides cognized by the more developed sense. And here there meets us a truth which is not seldom unheeded or overlooked. It will not happen that the objects that have been most carefully studied in school will be most

attractive out of school; it will rather happen that the organ of sense in which greatest accuracy has been developed will be found intending itself upon other and alien object as far as may be removed from the former. But the observation of these new objects will be accurate, for the sufficient reason that accuracy has become an inseparable belonging of the sense observing, just as a graceful utterance once acquired will accompany words anything but graceful.

The boy does not object to the exercise of faculty which this or that study demands, for the putting forth of power is at all times (save those of fatigue) rather delightful than otherwise; what he does object to is the subjection to necessity, and to the seemingly unescapable presence of the one object of study; therefore, it is that, when released from this bond of necessity, he will by preference direct the activity of the said faculty to other objects than such as have really developed it. And hence it follows that such accurate teaching as I am advocating would, in the majority of cases, rather tend to encourage an artistic scrutiny and accurate observation of all things visible than a predilection for the artist's profession. When this truth shall be recognized and possessed in its fulness as it was by the Greeks (whom we indeed copy, but in that literal manner which the Greeks would have most despised), then, and only then, will a study of the imitation of visible nature hold its true position in education as singly the most powerful ally of all other studies whatever. For what art or science, with the exception of music and mathematics, and what polite or useful calling in life is not aided by increased accuracy of eye? and what increases accuracy of eye so much as the imitation of visible things? But when, as we have just seen to be the case, this art not only makes truer the eye of those who practice it more or less, but also induces a more careful and patient observation of things in such as have practised it however little, if only rigorously, its claims to universality are strengthened to an extent which almost constitutes it an unique organon.—“*Outis*.”

THE TEACHING OF SCIENCE.

MR. JAMES STUART, of Oxford, one of the most active promoters of science instruction in England, contributes to a volume of essays lately published in London under the general title, *Woman's Work and Woman's Culture*, an essay on the teaching of science to women, from which we extract the following. As there is in this country but little of that difference in general culture between men and women, which gives rise to the restricted character of Mr. Stuart's remarks, they are susceptible of a much wider application here than he has seen fit to give to them. He says :

In this Essay there are three things that fall to be considered. The first is, What it is that we wish to teach when we say, let us teach Science to women ; and the second is, How we are to teach it ; and the third is, Why we are to teach it. I shall not consider these three things separately, because each involves the other. At the beginning too I should like to say, that when I speak of teaching Science, I speak of teaching it not to the few, who may extend its boundaries, but to the many, who may learn its lessons. To those few, Nature, I dare say, is the best instructor, and her own philosophy will plead her own cause. But for the mass of people there is a great benefit to be gained from the study of Science. Science teaches us to look outside of ourselves, and to look at *things* ; and it teaches us that the foundation of all true argument is experiment, whereby I mean a previous knowledge of the things about which we argue. And besides teaching us to look outside of ourselves, it teaches us to think for ourselves. One of the true objects of all education is to teach people to think for themselves. And there is perhaps nothing more fitted for this end than Science, and especially that department of it which is called Natural Philosophy. For to think well we must think clearly. What Education has to do is to engender the habit of forming clear and distinct notions of things, and, above all, of clearly seeing the distinction between these things themselves and our notions of them. The process of acquiring clear and distinct notions is of as much

importance as having them. And to reap the benefit of that process we each must go through it for ourselves. In getting into the habit of going through such a process for ourselves we may be helped in three ways. We may be taught by example what the holding of a clear and distinct notion is; we may learn to some extent the successive steps by which some such have been elicited out of confusion; and we may be furnished with some materials from which to elicit some clear and distinct notions for ourselves. All these three ends are well accomplished by the teaching of Natural Philosophy, or, as it is otherwise called, Physical Science; on account of which pre-eminent union of these three qualities there is nothing which can form a fitter introduction to a course of Education, nor anything therefore with which those, whose education like that of women has been somewhat backward, can better begin. The only objection which might be anticipated to such a subject is that it might be too difficult. But everything which is clear and distinct is easy; it is obscurity only that makes difficulty. Nor need any be afraid of the name Physical Science—Astronomy, Light, Heat, and the like. It is certain that these sciences, in so far as they have been scientifically treated, have been usually involved in the language of Mathematics. But there is no need for that. It is very fortunate that Science has had Mathematics for its handmaid, for therein is the best pioneer and the best registrar of its discoveries; but it is unfortunate for the general scientific education of the world that it has usually refused the services of all other ministers. It is no more necessary to express the great truths of these matters in mathematical language than in the French or in the Greek language; and when the whole is put in our own homely language, perhaps then better than at any other time are we enabled to see how grandly immutable are the facts we have to deal with as compared with the means by which we may happen to express them. For though mathematical language entails an accuracy of expression, it is by means co-ordinate therewith. Certainly I believe, though there be notable instances to the contrary, that yet scientific eminence is seldom attained by those ignorant of the Mathematics; and

while I therefore believe every teacher of Science ought to have that knowledge, yet that by no means implies such a knowledge in those taught. And the more acute the mathematical ability of the teacher, the less will he require to presuppose that ability in those whom he teaches. There are some of the processes of nature which are most generally represented in the language of differential equations, to translate which requires a very thorough comprehension of them; but yet it can be done, and that in many complicated cases. I mention this, for it behoves us to remember that in teaching Science to women we have to teach it to those who, in the present state of women's education, for the most part are quite ignorant of the usual preliminaries, and especially of the Mathematics. On which account it has been that, generally speaking, there have only been small portions of Science to which women have ever been admitted, and those rather of a vague and indeterminate kind; whereas one of the chief benefits of Science is in its freedom from vagueness. And on this same account it has been that most of the scientific teaching that has been given to women has consisted rather in the mere enumeration of simple unsuggestive facts, or of the detail of theories, that is, the results of processes, the processes themselves being altogether omitted.

And there can be little wonder that such study has never prospered among women, who thereby get a distaste, and exhibit a disqualification, not for Science, but for that which they are taught. But the true education which may be brought to us by the teaching of Physical Science consists not in the detailing of facts, nor in the detailing of results; nay, nor even in the detailing of a process, but in so presenting facts that the learner shall at each step be able to advance along the next step of the process for himself. For as we advance along our thought, we come at each succeeding step to many diverging roads; to throw a light across the whole landscape bewilders the young traveler, to carry whom blindfold to the end leaves him unstrengthened for the next attempt. But true teaching is so to hold the lantern that he may at each turn choose the right road for himself. Thus, if I were to conclude it in a word, I should

say that the true process of scientific teaching is to lead the learner along a road of continual discovery. For that process of ourselves repeating a discovery is that whereby, far beyond all talk of it, we learn what suggestion means; and that whereby we learn, from the repetition of our own success, that which no argument could lead us to.

To teach a process suggestively we must of course adapt ourselves to that which will be suggestive to the person taught; so that teaching of this kind is somewhat of a sympathetic thing, for some need more prompting to a suggestion than others. And it is on this account that nothing can ever supersede the oral teaching of Science and the Mathematics, for in oral teaching alone is there that facility of adaptation.

What is exactly meant by suggestive teaching is, like all good things, best learned by that most practical of answers the invitation to the practice of it; and within the limits of an Essay like the present it is hard to give an example. If some one were to ask me why the moon has phases; then if I were to call his attention to the fact, and bid him look for several nights to see, that it was rounded towards the sun, and bid him watch how its bright part increased or diminished, and then were to show him a dusty ball illuminated by a candle,—that would be a piece of suggestive teaching. To some the process would have to be carried a little farther ere their mind would anticipate the explanation. To others, their first observations would be sufficient these are they to whom so far Nature is herself suggestive which she is in a large way to those called discoverers whose frame of mind it is that we aim at, and not the making of discoveries in the natural world. For let us steer clear of that error that the only reason that Science is to be taught to us is that we may extend its boundaries; but that for which we learn it is this, that we may learn its habit of mind in all things, and that habit of mind is one in which we see what things have to do with one another. For it is a mistake into which men sometimes fall, to see in each piece of instruction nothing beyond its own specialty, wherefrom there arises that utilitarian argument that those things which are of immediate use are the rather to be taught.

HOME EDUCATION.

PARENTS, especially mothers, seem to have lost faith in the value of early intellectual training. Medical men, too, have got a way of saying, "Let the boy's brains alone, let him get vigor of body now, and leave his mind till by-and-by." Are a boy's brains then no part of his body? They demand reasonable exercise just as much as his arms and his legs; and to begin to learn such things as are within the compass of an infantine understanding is far from unfavorable to a child's physical strength.

Fathers, where their avocations permit it, may do much for their children in their earliest years. They however seldom have leisure for teaching. We appeal, therefore, chiefly to mothers, with whom teaching is not only more possible, but far more valuable. The mother's little lessons convey much more than the rudiments of knowledge. They teach her child patience, gentleness, and respect for her sex. Under her he learns to think a woman's rebuke his surest guide, her praise his purest earthly reward. We do not ask for much—a little reading, writing, and counting; a few stories from history; the Bible; Watts' Hymns; and a few stirring ballads. For a child of lively genius, a few works of imagination may be added—such as the "Arabian Nights," one or two of Sir Walter Scott's novels, or even a scene or two from Shakespeare. Nor will a woman of taste and refinement take her boy into the garden or the fields without trying to kindle in his mind a loving curiosity about the marvels of beauty around him. Were this generally done, we should soon cease to hear of dull scenery—as if anything from God's hand could be dull to a seeing eye!

The course of teaching, however, must be suited to each case. We can here only indicate an outline. But with all the earnestness in our power, we implore mothers to trust to their own good sense, and neither permit their children's brains to lie fallow, nor, if they can help it, leave it to others to sow in them the seeds of knowledge and observa-

tion. They rightly think it unmotherly and mischievous to hand over the bodies of their infants to the nursing of a foster-mother: let them reflect whether it may not be yet more unnatural and more perilous to intrust to others the nobler office of intellectual nurture. But we do not believe they need any assurances of this. Their failure in this department of duty is probably owing, in the main, to a modest distrust of their own abilities. So much is talked about education, so high are demands pitched, that they think the little they can do can be of no importance. Let them then be assured that no teaching of future years will be so powerful to make or mar a boy as the lessons of industry or idleness he gets from his mother in the first eight or nine years of his existence. It is in her power to train him to docile and observant habits, and the most learned and experienced instructor can do no more.—*Markham.*

IMPORTANCE OF INTELLECTUAL CULTURE.—A cultivated mind may be said to have infinite stores of innocent gratification. Everything may be made interesting to it, by becoming a subject of thought or inquiry. Books, regarded merely as a gratification, are worth more than all the luxuries on earth. A taste for literature secures cheerful occupation for the unemployed and languid hours of life; and how many persons in these hours, for want of innocent resources, are now impelled to course and brutal pleasure. How many young men can be found in this city, who, unaccustomed to find a companion in a book, and strangers to intellectual activity, are driven in a long, dull evening of winter, to haunts of intemperance and depraving society. It is one of the good signs of the times, that lectures on literature and science are taking their place among other public amusements, and attract even more than theatres. This is one of the first fruits of our present intellectual culture. What a harvest may we hope for from its wider diffusion!—*Dr. Channing.*

EDITORIAL CORRESPONDENCE

FACTS CONCERNING CORNELL UNIVERSITY.

MR. EDITOR:—Some time since, feeling somewhat more surprised at unfounded statements regarding The Cornell University, and somewhat less callous to unjust attacks on its officers than I have since become, I mentioned some such attacks and statements to Mr. Horace Greeley.

To my surprise, his face assumed even more than its usual benignity, and he said: "*It is a great deal better to have people attack you than to say nothing about you.*"

I confessed then, that of all men in this land, he ought to be an authority on that subject; and now that, despite a perpetual chorus of hints, innuendoes, and onslaughts by various denominational journals and College Agents, our first entering class is the largest ever known at an American College or University: the second entering class, after thorough examinations, nearly twice as large as the first, and every indication points to a third class larger still, I acknowledge that Mr. Greeley has not without reason been called "philosopher"—and in behalf of the University I thank those whose attentions have thus strengthened it.

Still, I frankly confess that though this institution has thriven under such treatment, it is not altogether pleasant to feel that very many earnest fellow-citizens of ours have been really induced to believe that we at Ithaca are Pagans—haters of Christianity—laboring to overthrow it or undermine it.

Will you then permit me, in the interest not only of the institution but of the public, to lay before your readers a simple statement regarding these attacks in the organs of various sects and colleges?

At the outset, I would call attention to the following facts:

First—There has never been a public exercise of any sort whatever, whether Inauguration, Commencement, or laying corner-stone, which has not been opened and closed with prayer; and it has happened that in every case the person officiating has been a clergyman in good and regular standing in an Orthodox Christian Church.

I say *happened*; because I will frankly say that if at any such exercises a noble heretic had been present, whether named Beecher, or Bellows, or Chapin, or Hale, or Hyacinthe, he would have been asked to take part just as readily as another, of faith more generally approved.

Secondly—Every plan of the buildings ever made has embraced a University Chapel; and though the present room has proved not large enough, the new one now building will, we trust, be sufficient.

Thirdly—Not a working day has there been since the organization

of the University which has not been opened with reading of the Scriptures and with Christian supplication in the Chapel—including that noblest of all petitions, that one whose origin is shown by the fact that it cannot be bettered, or perverted, or made sectarian—and whose applicability to human wants is shown by the fact that all men can join in it, and that large numbers of our students do earnestly join in it:—THE LORD'S PRAYER.

Fourthly.—A Young Men's Christian Association has been formed, which, young as it is, is second to that of no other college in vigor and earnestness; and regular services are held by it in a room appropriated to it in the University buildings.

Fifthly.—Not less than one hundred and fifty thousand dollars besides Mr. Cornell's endowments have been given to the institution during the past year for various purposes, and an additional sum of from fifty to sixty thousand dollars is pledged to us, and all of it, as far as I know, from earnest, Christian men and women, who had examined into our work so closely and whose consciences approved it so thoroughly that they made these gifts freely and without solicitation.

I might make further statements to show what little ground there is for the pleasant epithets that have been lavished upon us; such as *irreligious*, *unreligious*, *godless*, etc., etc., but the above are sufficient for the present.

So much for the University in general; a word now for the Faculty.

From the day when Mr. Cornell's offer was made, there have been a few persons eager in scenting out heresy. Before a stone was laid or an officer chosen, it was hinted that the institution was to be dangerous. The same bitterness was shown against it which was formerly shown against Oberlin College, now widely known as an evangelical stronghold.

As soon as a word was uttered the open war began. The President of the University had the honor to be first attacked. Words were put into his mouth which he never uttered, words were suppressed which he had uttered, and reports were circulated that he was very unsound, although at that very time he was a Trustee of Hobart College and professor elect in Yale College—two institutions where "soundness" will hardly be brought into question.

Professor Agassiz was denounced, although every scientific man knows him to be the great bulwark of the church against the Darwinian development theory. He was attacked for those very doctrines regarding creation which are now conceded in the orthodox book of the Rev. Dr. Thompson.

Professor Goldwin Smith was also attacked, although one of the most self-sacrificing and truly religious of men, and a communing church-member.

Professors George William Curtis and James Russel Lowell were attacked, although their lectures were purely literary; and, to cap

the climax, heresy was detected in the earnest prayer at recent public exercises, though made by a pastor whose orthodoxy was never before questioned, and who is a trustee of one of the most venerable evangelical colleges in the land.

Our Resident Faculty have fared no better. Though selected from the leading Christian Colleges of various denominations; though all bore the highest commendations from the faculties of those institutions; though all, so far as I know, are members of or attendant upon Christian Churches, portions of the community have been led to believe that these men are plotting against Christianity.

Of all this, Sir, I make not the slightest complaint. Those of us who have pledged our lives and fortunes to this building up of what we think a better and broader University education expected such attacks—and perhaps they are the most sure signs that the work is going on well. We simply commend these facts to every thoughtful man and woman.

Having spoken of the University and the Faculty, let me say a few words of the students.

Among the sins charged against them and their instructors, is the fact that at a certain Faculty reception there was dancing. On this were based two charges: *First*—That the Faculty were impolite to the clergymen who were present; *Secondly*—That countenance was thus given to “an amusement destructive of vital godliness.”

As regards the want of courtesy, or the “insult,” as one journal has called it, the clergymen of the town were all invited among the first and most honored guests, and they were warmly welcomed; and it was not until *after the hour named in the invitations for the close of the reception*, that, without any expectation of it or responsibility for it by the Faculty, a student sat down at the piano and dancing sprang up naturally and easily between several of the young gentlemen and ladies present.

Do not understand me as placing our body on the defensive or apologizing for this in the slightest degree. I yield to no man in respect for the Christian Ministry, I have ever felt it an honor to work with them in promoting the Christian civilization of this land; but I cannot acknowledge that any person has a right to feel insulted by what other guests, equally conscientious with himself, thought fit to do after the time named in the invitation had elapsed.

As to the sin then and there committed, I know that I but express a very deep feeling among great numbers of Christian laymen and pastors of broad experience when I say that if students passed more of their spare time socially with ladies of refinement, even if there were dancing, there would be far less ruin of body and soul in American colleges by secret vice and open dissipation.

The authorities of the University have not thought it necessary to interfere with the amusements of students so long as they were of a sort approved by their own parents. We have determined to treat

our students as MEN. By means of our semi-military system, the government of students and responsibility for good order is largely entrusted to students themselves. For those who have proved themselves unworthy of such manly liberty there has been discipline "sharp, short, and decisive;" but as to the success of the system in general we challenge this country or any other to show a body of six hundred students with such general earnestness in study and with so few breaches of honor and order.

Permit me now to state, as briefly as possible, the position of the Founder of the University as regards religion.

Mr. Ezra Cornell has amassed a fortune. He has not won it by stock jobbery—by despoiling innocent shareholders of property entrusted to his care—by "cornering" in Broad street or "shaving" in Wall street, or by any of those recent devices which, by comparison, have made gambling harmless and burglary respectable. Every dollar of his is the result of honest labor—labor which, while it has brought him fortune, has increased the prosperity of his country and of every man in it.

His life has been full of kindnesses to struggling and deserving men, and to these he here adds the greatest of all. By direct donation and by more and better care of the University lands than most men give to their own affairs, he has given to the young men of his native State, for their liberal and practical education, an endowment which may be safely estimated in millions.

His ideas are simple. Without any prejudice against the study of ancient languages and literature, he wishes to give just as thorough training in modern languages and literature, and especially in our own. While approving study of the masterpieces of human thought and expression, he wishes that this great book of nature spread before us by God himself, shall no longer remain a sealed book to the great majority of young men. Having been a mechanic, and having seen how much waste and suffering arise from unskillful and misdirected labor, he wishes to bring science to bear on the Mechanic Arts. Having been a farmer, he wishes to bring science to aid Agriculture.

The breadth of his *theory* is shown by his saying, now graven on our corporate seal: "I would found an institution where any person can find instruction in any study." The breadth of his *practice* is shown by his purchase of the Anthon Classical Library and the Bopp Philological Library—among the finest of their kind in the world—at the same time with the largest single purchase ever made by any institution of this country, of collections in Natural History, engineering models, physical apparatus, machinery, etc.

This is his first idea. The second idea is as simple as the first is broad. Having been a poor young workingman himself, he wishes to put as many young workingmen as possible in the way of earning a thorough education. For this he is constantly working, and though

only a beginning is made, we believe it is a good beginning. But this is not the best. Greater than all else is the way in which he has met the steady fire of slanders poured upon him from various quarters. Bitter as they have been, he has never flinched. They have never turned him for a moment from his purpose.

His friends having suggested, contrary to his original intention, that his name be attached to the institution created by him, he was attacked for wishing to "erect a monument to himself." It having been suggested that in view of his gifts and efforts, his eldest male lineal descendant be *ex officio* a Trustee, he was loudly charged with "wishing to found a hereditary aristocracy." He opposed frittering away the United States Fund among a large number of Colleges, and he was charged with "robbing the Colleges of the State." Having built up this fund from six hundred thousand dollars to three or four millions—under arrangements sanctioned by laws carefully made and jealously executed—laws which bind him under heavy penalties and do not allow him to make for himself one dollar, sundry local and denominational journals call him a "corruptionist" and "a swindler."

The way in which these efforts and gifts have been received forms the vilest chapter in the history of this State; but he has worked steadily on, confident that the people of the State will one day acknowledge it.

In all this there certainly seems nothing very un-Christian. From all the covert attacks on him we may safely appeal to the decision of the MASTER: "By their fruits ye shall know them."

But let us look closer. Mr. Cornell was brought up a Quaker; I am not at all sure that he is not heretical. Perhaps he deserves to share the fate of his Quaker ancestors in New England. But, whatever his heresies, narrowness is not one of them. He has aided churches and Christians of every sort, and the character of the man was well revealed when he founded the Public Library for his townsmen, at a cost of nearly one hundred thousand dollars, and *made every Pastor, of every denomination in Ithica, a Trustee*. Was this the act of a hater of Christianity? Which is the better Christian, this man of rough coat, but warm heart, traveling nights and working days, year in and year out, in enterprises such as these of his; or the man who stands aloof, suspects, scoffs, hints, and tries to infect weaker men with his own personal jealousy or sectarian bigotry?

While this spirit of comprehensiveness was shown by Mr. Cornell, a similar spirit was shown by the Legislature in conferring our Charter. That instrument expressly provides against making the institution sectarian. It virtually declares that no officer, professor, or student, shall ever be accepted or rejected on account of any religious or political views he may or may not hold.

Acting in accordance with the spirit of our Founder and of our Charter, we choose no professor because he is or is not a Methodist, Baptist, Roman Catholic, Presbyterian, Unitarian, or Episcopalian;

but we endeavor to secure the *best man for the place* ;—not the best man in *some one* denomination, but the best man we can secure among *all* denominations. We have too much faith in the power of Christianity to believe that it is to be shaken by a course so plain and so honest.

The result proves our system a good one. In the list of professors appointed or decided upon every considerable denomination is ably represented.

It seems to be thought by some that attacks upon the Cornell University are necessary to prevent injury to the colleges specially conducted by various denominations. No mistake could be more evident. Those colleges are to-day stronger than ever. They have a work to do, and will do it. In this great State, with four millions of people, there is work enough for all. There should be none but a *generous* emulation between institutions representing the two different systems of education.

None but words of kindness have been uttered by us regarding those honored institutions and their respected corps of instructors.

It is true that when our institution had been attacked by the agent of a leading denominational college, over and over again, as a place dangerous to youth, I felt it a duty to state the fact, that of the two students expelled from our institution during the first year, one came to us with flattering testimonials as to character from that very college ; and the other came from its immediate vicinity and frequent relations with its students. And it is true that we have at times, in arguing educational questions, criticised features of the system to which those institutions adhere, but there has never been a thing said unworthy of the comity which should exist between institutions of learning.

It is a well known historical fact that every improvement in advanced education has been bitterly opposed as dangerous by great numbers of truly conscientious men. It is interesting though not surprising to see the same tactics resorted to now in behalf of the prevailing system of collegiate education which were resorted to against it in the days of Erasmus and Luther. The greatest benefactors of the race in this field have almost without exception been attacked as “ Infidels,” and “ Atheists,” and their work has been stigmatized as “ godless.”

We do not then at all lament our position, especially since in the language of one of our most gifted countrymen, “ Nothing ‘ *pays* ’ in America like heresy ;” but in common fairness permit us to suggest that before currency is given to assertions virtually involving the charge that a large body of Christian Trustees, Professors and benefactors are foolishly or navishly working to overthrow Christianity, the precaution be taken of examining into the basis of such reports, and the motives of those who start or spread them.

ANDREW D. WHITE,
President of Cornell University.

AN EXPLANATION.

MR. EDITOR:—I have just seen a copy of the "American Educational Monthly" for January, 1870, containing a notice of my *Abriss*, in which I am accused of plagiarism from a course of lectures delivered by Professor Müller, at Göttingen, in the winter of 1859-60. I have no disposition to deny my indebtedness to Professor M., as well as to other professors whom I heard on the same subject elsewhere. Indeed, the first draft of my manuscript contained a note after the list of books which I had consulted in preparing it (given on pp. 15-18), in which I defined my position as follows: "In addition to the above-mentioned works, the author desires to express his indebtedness to the several courses of lectures which he attended (either wholly or partially) in different German universities, especially to the lectures of Professors Müller, Weber, Holtzmann, Kinkel and Lasaulx. This indebtedness, although doubtless large, it is not easy to define or to indicate in the body of the work, since it consists in the inevitable and often unconscious reproduction of ideas, criticisms, and even phraseology, which it would be impossible to refer, with any certainty, to the lecturer who uttered or suggested them." This note was afterwards omitted at the suggestion of a friend (who read the manuscript), as being more appropriate for the preface. Why, then, have I "waived writing a preface?" I have not done so. Only a few hundred copies of the *Abriss* have as yet been printed, and these were designed for use in my own classes, and for distribution among teachers of German in colleges and high-schools, with a view of correcting any errors in the work, and receiving any suggestions concerning it. In the hurry of getting these preliminary copies ready, and absorbed by the pressure of other duties, the preface was neglected, and the book appeared without it. Several months ago, however, the preface was written, containing the passage already quoted (with only the slight change of substituting "the list of works given on pp. 15-18" for "the above-mentioned works"), and is now ready (together with the corrections that have been suggested), as soon as the publishers are prepared to issue a second edition, or rather a first edition intended for general use. This statement of the facts in the case effectually answers the charge of wishing to conceal my indebtedness to those by whose labors I have profited. I have no wish to deny these obligations; but what I *do* deny is, that I prepared my *Abriss* from notes taken of lectures delivered by any of the German professors whose names I have mentioned. My notes of Professor Müller's lectures covered not quite three sheets of paper, and gave only a meagre outline of the course and the divisions of the subject into periods; this division I have followed in the *Abriss* in its main features, but not exclusively. While attending lectures I read Koberstein (so far as then published), Gervinus, Vilmar, Goedeke, and other works, which it would be difficult for me to obtain in this country. I took notes (in

German) of nearly all the books I read, and afterwards consulted those notes in preparing the *Abriss*, and I have no doubt that in them were incorporated many ideas that I had heard expressed in the lecture-room. Such a result I could not avoid if I would, and I see no reason why I should have avoided it, although I might have been more careful to signify in the notes, as far as possible, what thoughts were uttered or suggested by each professor, if I had supposed that they were destined to serve as the basis of an *Abriss* ten years later, when the remembrance of these particulars would be almost wholly effaced. That the "style and the whole treatment of the subject," suggested to Mr. Fischer, a lecture of some German professor, is very natural, and easily explicable after what I have just stated, as are also the parallel passages which he cites, without assuming the *Abriss* to be a mere transcription of notes of Professor Müller's lectures. The logical and chronological development of epic, lyric, and dramatic poetry out of the folk-song is a classification that has been made by nearly every modern writer that has discussed the subject at all. In Xenophon's *Memorabilia*, in Plato's *Republic*, and in Aristotle's *Poetics*, the three kinds of poetry (epic, lyric, and dramatic) are distinguished and defined very much as I have done on pp. 11 and 12. The relation of the folk-song to these was first (so far as I know) set forth by Herder, and has been universally accepted since his time. As regards the helps and sources to which I refer on pp. 15-18, there is not a single one that I have not read, and do not have in my possession. My remark that Gervinus is most reliable for the literature of the 17th century, ought to have included the 18th century also, since I regard the chapters on Lessing as the best in the whole work. It is hardly credible that the statement that "Gervinus is best for the literature of the 19th century" can have been made by Professor Müller, since Gervinus only treats the literature of the 19th century very cursorily in the last fourth of the fifth volume of his work, some of the greatest names not being even mentioned. On p. 16 I speak of Koberstein's *Grundriss* as just completed; Professor Müller is represented as saying also that the 4th edition of Koberstein's *Grundriss* is just completed, whereas it was not completed till 1866,¹ six years after Professor M.'s lectures were delivered. On p. 40 *unmittelbar* is an "error of print," and was pointed out to my classes as corrected long ago; the very presence of the word *nur* shows that *mittelbar* must have been meant, just as the use of *hatte* in line 10 p. 187 proves that *zweiten* (in line 9) is a slip of the pen, and should be *ersten*. The critic says "Mr. Evans persistently says *Goethen's*," instead of *Goethe's*; the contrary is true. In my copy I do not find a single example of the form *Goethen's*, but *Goethe's* is repeatedly used.² The sentence on p. 187, beginning with *Das Stück zeigt*, etc., is, I am aware, not clearly expressed; but was corrected long since by substituting *in* for *von* in line 5, and inserting *von dem rechten Wege* before *abgebracht* in line 6, the intention having been to express as concisely as

possible what is said (in the prologue) by *Der Herr* to Mephistopheles :

" Ein guter Mensch, in seinem dunkeln Drange,
Ist sich des rechten Weges wohl bewusst."

And reiterated by the angels in the concluding scene of Part Second :

" Wer immer strebend sich bemüht,
Den können wir erlösen."

Mr. Fischer says it is not Helena that leaves her cloak, etc., behind, but Euphorbion.³ Now, Euphorbion most certainly leaves his cloak, etc., behind (p. 220), but so does Helena also (p. 222).⁴ After a short speech about happiness, beauty, the ties of love, etc., the poet says, " She embraces Faust, her body melts away, garment and veil remain in his arms." Phorkyas then tells Faust to hold fast to the garment, for the demons are tugging at it, and would gladly pull it down to the nether world. Helena's garments then dissolve into clouds, encircle Faust, and float away with him. He does not disappear *with* Helena, but is carried on this cloud to a high mountain after Helena has vanished into the lower world. Phorkyas is the mask of Mephistopheles, but is (in this form⁵) in the service of Faust and Helena. On p. 181 the word " namely" is not in the original, although the colon would imply it. The colon, however, is a misprint for a comma, and originated in a fly-speck in the manuscript. All that is meant to be said is, that these young men became acquainted with the chief representatives of the Genie-Periode (who have been previously mentioned) as well as with Rousseau,¹ Ossian, etc. (*i. e.*, with their writings), assuming, of course (what I do not believe) that such a person as Ossian once existed. The error in the quotation from Goethe's " Diner zu Koblenz" (*Diné zu Coblenz* is Goethe's orthography) was not a misprint, but such a mistake as might be easily made in citing a passage from memory. The error I discovered and corrected in the class-room some time ago. In fact, my list of corrections for the new edition of the *Abriss* covers more than fifty errors of various kinds. Mr. Fischer argues by a curious process of " creative criticism," that because⁶ he has detected resemblances between my *Abriss* and Mr. Wiemann's notes, therefore the whole book is taken from Professor Müller's lectures. I am not aware that Professor M. ever considered the most recent German literature in any of his lectures. The last lecture that I heard him deliver was on Goethe, so that it is impossible that I could be indebted to him even for a list of the names of the modern poets, Freiligrath, Hoffmann, etc. If I owe anything to any lecturer here, it is to Kinkel, about six or seven of whose interesting lectures on this subject I did hear.

I have thus given, in as few words as practicable, a plain and correct statement of the origin of the little book, which was originally intended not for publication, but as a syllabus for my own classes. The very little *Abriss* excludes the idea of original researches, and im-

plies an abridgment and epitome of larger and more elaborate treatises; this is all that I ever claimed for my book. I have in my library a *Grundriss*, prepared by a distinguished German professor, from which I could select scores of passages which are identical in thought, very nearly so in phraseology, with passages taken from more and complete works on the same subject. And yet no one has accused the author of plagiarism. A *monograph* is presumed to be based on independent and original investigations; but such a supposition would be absurd in respect to an *Abriss*,⁹ which means merely a summary, an abstract, "the whole in little." I may add, in this connection, that my manuscript was submitted to two German friends, at least, and I think both of whom, had heard Professor Müller's lectures. They suggested several changes, but made no mention of resemblance to those lectures. The very fact that I put the work in their hands for critical examination is evidence enough that I had consciously taken it from those sources; for the stigma of plagiarism attaches, not to coincidence (which is often and especially under such circumstances unavoidable), but solely to intention.

E. P. EVANS

UNIVERSITY OF MICHIGAN, January, 1870.

NOTES.

[In the following notes we take the liberty of correcting certain errors into which Professor Evans has fallen in his letter.—EDITOR]

(¹) Koberstein's *Grundriss* was completed in the *third* edition early as 1837. Professor Evans's statement that the work was "completed" (in 1869, when his *Abriss* was published), is therefore altogether erroneous.

(²) We will help Professor Evans a little. On page 178 he says: *Der gipfelpunkt Goethen's Geistesentwicklung*, a combination of words in which the genitive *Goethen's* is not the only solecism.

(³) Our reviewer said that Helena's son *Euphorion* (not that *Euphion*) left his cloak.

(⁴) A mistake. Euphorion leaves (*a*) his garment, (*b*) his cloak, his lyre. Helena leaves (*a*) her garment, (*b*) her veil, but *no* cloak, which Goethe had too much taste to attribute to her.

(⁵) Faust disappears almost instantaneously with Helena, her garment remaining but a moment in his arms.

(⁶) Mephisto was *always* in Faust's service, and it was he, Faust, that acquires the *form* of Phorkyas.

(⁷) This Professor Evans meant, perhaps; but certainly he did not say it, with or without the fly-speck.

(⁸) Professor Fischer nowhere said so. The *fact* established for him, namely, that the first sixty pages of Professor Evans's book bear a close resemblance to certain notes of Professor Müller's lectures, does not exclude that Professor Evans may have made use of many other books, or written parts of the book himself.

(⁹) Another mistake. There is nothing in the title *Abriss* (which corresponds to the English *Outlines*) presupposing, or in the least justifying, the absence of originality.

EDUCATIONAL INTELLIGENCE.

MASSACHUSETTS.—Of the 270,000 persons in this State, between the ages of five and fifteen years, 247,000 attended public school a part of the past year, the average attendance during the winter being 200,000, a slight increase over former years. The amount expended for instruction was \$3,123,886, an increase over last year of \$273,181. In addition to this amount, there was expended \$1,295,314 in the erection and repair of school-houses. The cost of tuition was \$10 85 a pupil, an increase of about 95 cents for each child in the State. The law abolishing the district system has been carried into effect cheerfully, and with the desired results.

PENNSYLVANIA.—From the thirty-sixth annual report of the State Superintendent, we select the following facts of general interest in regard to the schools of Pennsylvania for the year ending June, 1869. The number of schools reported was 13,936; increase, 524. The number of teachers, 17,142; increase, 2,301. The number of pupils enrolled, 815,753; increase, 166,238. The average number in attendance, 548,075; increase, 135,026. The percentage of attendance on the whole number registered was 67. The average length of school term was a trifle over six months. The estimated number of pupils in attendance at private schools was 85,000; and the number not attending school, 75,000. Nearly \$2,500,000 were expended during the year in the erection of new school buildings—more than five times as much as was ever spent in any single year prior to 1866. Of the whole number of school-houses reported, 7,420 were frame buildings, 2,141 brick, 1,560 stone, 473 log. The number reported as having grounds suitably improved was only 959, a little more than one-twelfth of the whole; 1,416 were unfit for use; 5,099 were without out-houses, and 5,379 were not well ventilated. In the matter of interior furnishing 7,047 had suitable, 3,976 insufficient, and 1,880 injurious furniture. In regard to apparatus, the report shows an encouraging decline. The number of

schools reported as well supplied, 1,909, is less by 145 than the corresponding number for the year preceding. As the apparatus of a school is not likely to wear out or be wholly destroyed in a single year, this difference would seem to indicate, on the part of those whose business it is to report such matters, a juster opinion of what is required to supply a school with apparatus, rather than a falling off in the amount of apparatus in use. The number of schools wholly without apparatus, 1,390, was less by 298 than was reported the year before; 1,187 schools were supplied with apparatus during the year; 7,281 had outline maps. Of the teachers employed, 7,165 were men, and 8,505 were women; 3,692 had taught more than five years; 2,413 had never taught before; 1,632 had attended a normal school; 10,992 read books on teaching; 11,381 attended county institutes. The average age of the teachers was 24 years. The salaries of the male teachers averaged \$39 a month; the salaries of female teachers, \$30 52. The cost of tuition for the year was \$3,500,704, an increase of \$751,909 over the sum expended the previous year. The entire sum expended for public education was \$6,986,149, an increase for the year of \$2,790,990. A teachers' institute was held in every county, with an aggregate attendance of 11,381 actual members. Honorary members and spectators swelled the attendance to nearly thirty thousand. The average attendance was over twelve thousand. Five hundred and fifty-eight lecturers were employed, and 253 essayists. The cost of county institutes was \$10,796, besides \$2,262 contributed by the members.

OHIO.—According to the inaugural address of Governor Hayes, the school population of Ohio last year was 1,028,675, an increase of 11,108 over the previous year. The number of pupils enrolled in the public schools was 740,382, an increase for the year of 8,610. The average daily attendance was 434,865, an increase of 24,144, or nearly three times the increase in school population. This speaks well for the schools. The taxes the present fiscal year for school purposes amount to \$6,578,197, an increase over the previous year of \$616,796. Of this increase \$17,884 is in the State taxation, and \$598,962 is the increase

Of local school taxation. The adoption of county superintendency, the substitution of township boards of education for the present system of township and sub-district boards, a codification of school laws, and other important measures, are recommended.

WISCONSIN.—Governor Fairchild gives the following figures in regard to the condition of the schools of Wisconsin at the beginning of the present year: The number of children in the State, over four and under twenty years of age, was 398,747, of whom 264,033 attended public schools during some part of the past year. The number of public school-houses in the State was 4,742, valued, with their sites, at \$3,482,125. The public expenditure for educational purposes was something over two million dollars, or about eight dollars for each pupil registered. Comparing these figures with those of the Superintendent's report for the preceding year, it appears that the increase in school population was about 12,000, while the increase in school enrolment was about 15,000. The increase in number of school houses was 96. Notwithstanding this gain, the Governor reports that after making a liberal allowance for the number who have previously attended school, and for those who were so situated that they could not attend, there will still remain in the State more than 50,000 youth who are growing up in ignorance; more than one-eighth of the whole school population, and about one-sixth of the number that could reasonably be expected to attend school.

INDIANA.—The *Indiana School Journal* says that records in the Office of Public Instruction show the following statistics of the schools of the State for last year:

Length of term of school, four months and fifteen days; number of pupils in primary schools, 447,416; in high schools, 12,500. Number of male teachers, 6,730; female teachers, 4,274. Monthly compensation of male teachers in primary schools, \$37 40; in high schools, \$75 00. Monthly compensation of female teachers in primary schools, \$28 40; in high schools, \$42 40. Total expended for tuition, \$1,686,905. Special revenue expended, \$1,074,707. Paid trustees, \$49,237. Total school fund on which interest

accrues, \$8,314,852. Houses built during the year, 405. Total value of school property, \$6,577,258.

IOWA.—The following statistics of public education are given in the Governor's message: The number of districts (including independent districts) is 1,462, an increase of 141 in the biennial period; the number of schools is 7,091, an increase of 780; of these schools 221 are graded. The number of persons between the ages of five and twenty-one is 418,168; the aggregate number attending schools is 296,138, nearly 79 per cent. of the whole, and the average 178,329, nearly 43 per cent. of all. In 1867 there were 372,969 within the school ages, of whom 257,281, nearly 69 per cent., were enrolled as scholars, with an average attendance of 148,620, nearly 40 per cent. The percentage of attendance, both aggregate and average, thus shows a satisfactory increase. The number of teachers employed in 1869, was 11,994; in 1867, 10,343; and in 1857, 2,996. The average compensation of male teachers 1869 was \$9 24 per week; in 1867, \$8 97; in 1857, \$6 09: of female teachers in 1869, \$6 79; in 1867, \$6 16; in 1857, \$3 24. In 1869 there were 743,521 days of school taught, an increase since 1867 of 94,841, and since 1857 of 575,245. The average cost of tuition in 1869 was 34 cents; in 1867, 34½ cents. The amount paid teachers in 1869 was \$1,438,964 04; in 1867, \$1,161,653 13; in 1857, \$198,142 55. The number of school-houses is 6,407, worth \$5,295,364 45; in 1867, there were 5,454, worth \$3,450,978 93; and 1,686, worth \$571,063 91 in 1857. The district tax last year for the teachers' fund amounted to \$1,106,040 21.

ENGLAND.—By offering Dr. Temple the Bishopric of Exeter, Mr. Gladstone has removed from his post the most eminent schoolmaster in England. Dr. Temple has done much for the education, present and future, of all classes. He may fairly claim to be the first head-master who recognized the importance of education in Science, and effectively introduced it into his school. And its introduction at Rugby is of special importance, because it is the acknowledged leader in educational progress, and because so many head-masters have been trained there. Now Har-

row and Eton, and several other schools are doing something, though none yet with quite the same liberality as Rugby; but it will be instructive to look back ten years, and thus to estimate the advance. Rugby was then the only public school where science was taught at all. But even there it was under great disadvantages. No school was assigned to it; it was an extra, and heavily weighted by extra payment. There was no laboratory, scarcely any apparatus, and scarcely any funds for procuring it. About forty to fifty boys attended lectures on it, but there was no possibility of making those lectures consecutive, and of dealing with advanced pupils. Now there is a suite of rooms devoted to science. A large and excellent laboratory, where thirty boys are working at the same time at practical chemistry with the assistance of a laboratory superintendent, opens into a smaller private laboratory, which is for the use of the master and a few advanced students. This again opens into a chemical lecture room, in which from forty to fifty can conveniently sit. The seats are raised, and the lecture table fitted with all that is required. Adjoining is the physical science lecture room, in which sixty can sit, and of which a part is assigned to work tables. And out of this the master's private room is reached, in which apparatus is kept, and experiments and work prepared. There is a considerable geological museum, and an incipient botanical collection. A Natural History Society meets frequently, and publishes reports and papers contributed by the boys. Five masters take part in teaching natural science. It is introduced into the regular school work (about 360 out of 500 appear to be in the Natural Science classes); being compulsory on all the middle school; an alternative in the upper school; and optional in the sixth form. And the result of the teaching has been satisfactory. It has not damaged classics. It has been the means of educating many boys, and has been a visible gain to the great majority; and it has steadily contributed to the lists of honors gained at the University. If Dr. Temple had done nothing else, his name would deserve honor at our hand for having brought about this change. Let us hope that his successor will be equally liberal to science.—*Nature*.

CURRENT PUBLICATIONS.

MR. WELCH is a skilful gymnast, but an unskilful book-maker. Practically qualified to write on Physical Culture, the third of his book¹ devoted to that subject is excellent; but it is almost buried in a mass of indifferent writing on Moral and Intellectual Culture, in which fields the author is less at home. Part I. (59 pages) devoted to the Gymnasium, tells how to build and equip a gymnasium, how to regulate and use a gymnasium, and lays down systematic courses of exercises with and without apparatus. A specially valuable feature is a carefully graded course of miscellaneous exercises arranged for each day of the week for a period of forty weeks—the usual school or college year. The chapters on the Home Gymnasium, Training, etc., are short and good. Part II. (72 pages) is devoted chiefly to the Dio Lewis System of Musical Gymnastics. Mr. Welch takes a middle ground between light and heavy gymnastics. He would have a prudent use of both, giving the preference, however, to light gymnastics in all cases where but one kind is to be had. The exercises are described in what Mr. Welch calls *Short-hand*, the brevity and simplicity of which add much to the usefulness of the book. The remainder and larger part of the book is filled with a medley which serves to make the book thick rather than valuable.

A delightfully instructive child's book is Saintine's "Dame Nature and her Three Daughters."² The author's theory is briefly that there are many wonders in the world besides those in fables and fairy stories, and children can easily be surprised and amused, even by facts, if related in a lively manner. With a perfect command of the needed "lively manner," he adroitly entraps a company of little folks into a series of talks and stories about natural history, and things of daily use, that cannot fail to instruct as well as entertain his little readers.

(¹) "*Moral Intellectual and Physical Culture; or, The Philosophy of True Living.*" By Professor F. G. WELCH. New York: Wood & Holbrook.

(²) "*Dame Nature and Her Three Daughters.*" Translated from the French of X. B. SAINTINE. New York: Hurd & Houghton.

AMERICAN EDUCATIONAL MONTHLY.

APRIL, 1870.

DISCIPLINE IN THE SCHOOL-ROOM.

I. DIFFICULTIES IN THE WAY OF ITS SUCCESSFUL MAINTENANCE.

THERE are few teachers who, at some point in their experience in the school-room, have not found themselves taken all aback by some special development, or case, for which their theory made little or no provision. There is not a school anywhere which has not some peculiarities of its own. There is not a teacher possessed of ordinary experience in common school teaching, but has found it vastly easier to govern some schools than others. In one school he meets with elements of discord far more difficult to reduce to system, than in another; though to outward view the school may be made up of much the same material. The pupils may be equally advanced and equally quick or slow to learn, and ranging in nearly the same ages and general classification; and yet there will be something—what that something is it may not be always so easy to detect—something in the one, making a far larger draft upon the teacher's disciplinary exertions, than in another, which it has been his, it may be but a little before, to govern.

Besides, there is a vast difference in the mental make of those assaying to teach. To one it seems a perfectly natural acquirement to secure and maintain a degree of order at which another, perhaps equally well qualified to instruct,

stands almost amazed—wondering how it is that his more fortunate co-laborer finds it so easy to do that which costs him such constant efforts. He labors hard ; he means moreover to effect the end he aims at. The expenditure of strength, of thought, and of patience, in the successful one bears perhaps no comparison with that put forth by the less perfect though no less earnest disciplinarian.

Whence this disparity ? Where is the defect ? Is it all in the school ? Or in part there, and in part in the teacher, and possibly in part in what the teacher finds himself little able to remove or remedy ? For there are difficulties, and serious ones too, from a source over which the teacher possesses hardly any control ; and there are others which prove to be difficulties only because they are not properly apprehended and wisely dealt with.

Our purpose in the present article is to glance at a few of these obstacles in the way of securing perfect order and discipline in the school-room, reserving for a subsequent article the suggestion of some of the means or methods of their successful removal ; or, where they may not be removed, how they are to be disposed of so as not to impede but rather to promote the desired ends of discipline.

I. The first impediment which we notice as one found by many teachers to be in the way of carrying out their plans of government in the school-room, is the interference of parental or patronal authority.

This is felt especially by teachers in our common district and graded schools, who are expected to receive all that are sent for instruction, and to govern all ; albeit they may be pupils who have never learned even the first principles of subjection at home. They come from families often where has existed no sort of government, except the government of will, and that not unfrequently of an exceedingly capricious and arbitrary stamp. Parents and guardians are not always model disciplinarians in the family and in the control of their wards. Take society as a whole, and the well-governed families are perhaps among the exceptions ; whilst the majority are specimens of greater or less mismanagement. Indulgence and want of wholesome restraint, with self-will unsubdued in children at home, are found by

every teacher to be among the foremost of the sources of embarrassment in the maintenance of perfect discipline in the school-room.

At the same time, it not unfrequently happens, that the parents in whose households the least parental authority exists, are among the first to enjoin upon the teacher the necessity of making their children "mind."

In fact many of them send their children to school with the express statement to the teacher that they can do nothing with them themselves; and the only hope, as confessed by them, is to have the teacher make something of them—make them, forsooth, what they themselves, from their children's infancy, have been assiduously laboring to disqualify them to become—obedient children. Though we would not for a moment doubt the integrity of their design—they do not mean to make their children unruly and disrespectful of rightful authority—yet certainly they could take no surer course than they do, to secure this end, viz.: by indulging their children, or correcting them only when in a passion, and then a moment after regretting and perhaps retracting the whole they had done.

Let however the teacher begin to correct: let him exercise the very authority which the patrons of his school commit ostensibly in such unlimited measure to him, and the parents described will be the very first in their outcries against the teacher's usurpations and alleged severity. Nay, they become even violent in their opposition, appealing most likely to the trustees, and they in turn, sympathizing with what they misjudge to be pure parental feeling for the welfare of their sons and daughters, perchance censure the teacher; and there he stands before the school, shorn of his respect and authority, his influence paralyzed, his hands hampered, and his prestige as a disciplinarian circumscribed, if not completely destroyed. What is he to do for redress? The trustees may be as unacquainted practically with the teacher's embarrassment and position as the parents. Severity—cruelty is the hue and cry; and of course it will not do for trustees to run counter to public feeling, often prejudiced, always more or less biased in favor of parental sympathies.

Were the teacher, under such circumstances, in a private or select school, or academy, or collegiate institution, the way would be far more open; for the offending pupil or pupils might be dismissed at once, and there the matter, as far as he was concerned, would rest; since none are compelled to patronize, and the private teacher is equally uncompelled to retain patronage, if he finds it infringing on his interests in other respects. This then, viz., parental interference, is often a very serious impediment, even to the best of instructors, to the maintenance of perfect discipline in the district school-room.

II. But there is another, and scarcely less embarrassing obstacle as regarded by some, in the way of discipline, and that is what, for want of a better appellation, we shall term the democratic element, the inborn independence of spirit felt by every genuine specimen of Young America—a disposition to exercise self-government, instead of bowing subserviently to the arbitration of another's will.

The young scion of free-born American Aristocracy—and few there be of native birth who consider themselves unentitled to the rank—breathes in the elements of freedom almost with the first breath he draws; he drinks it in with the aliment of infancy, and grows up claiming and exercising his inalienable prerogatives as a free man. He brings the same self-thinking, self-judging, self-choosing spirit with him into the school-room: and no sooner does the will of the pedagogue begin to assume its sovereignty in its little monarchy, the school-room, than Young America, like old America in days of yore, rebels. He will not submit to be dictated to. Each member of the little constituency is a miniature autocrat, in its legitimate sense, conscious of rights and a will; and conscious moreover of at least some strength, and not a little independence often, in defending those rights and in wielding that will.

We once heard a teacher, after having most ineffectually belabored himself in beating, or endeavoring to beat the principle of absolute obedience into an incorrigible representative of the genuine native-born, lament in most dolorous strains that this was not a monarchy, or an absolute despotism. "There is no such thing," said he, "as teaching—"

these American children to obey will. You see no such obstinacy in Prussia, or Russia; nor even in France and England. What have such young brats (we use his own expression) to do with thinking for themselves? They ought to be made to mind without a reason, just because I say so; and if I had them at my own control, I would teach them to respect authority—to bow to their superiors." We need hardly add that he was not an American.

But he nevertheless spoke out what many teachers have felt, but would not express. This independence of spirit—this inherent restiveness under restraint—gives a world of trouble to many an inexperienced pedagogue, and not a little to many a judicious, intelligent, and it may be successful disciplinarian. If pupils could only be made to yield an unconditional submission, we should hear far less complaint, we opine, concerning the difficulties of thorough discipline in our district and other schools.

But to this point we shall have occasion to recur, when we come to speak of the remedies of defective government in the school-room. We pass, therefore, to notice a third embarrassing cause, viz. :

III. Innate mischievousness, or an inveterate propensity in some pupils to vex and annoy the teacher.

There is not perhaps a teacher anywhere, be his experience limited even to a single day in the school-room, but has had to encounter this, at times, exceedingly harassing and perplexing source of annoyance. Few are the teachers who have not time and again "groaned in spirit" as they have sat and looked over their school, watching the general movements of things, both upon and beneath the surface, marking the many sly, and some exceedingly shrewd, methods of communication between pupil and pupil, and noting the varied devices in which the mischief-making seemed to possess such a versatility of skill in inventing, and such dexterity in bringing into play; some to divert, and others it may be designedly to attract the teacher's attention to an already consummated trick.

We have sometimes thought that it required a patience even surpassing that which Job is represented to have possessed, to be at once a successful instructor and disciplina-

rian. For that afflicted and vexed patriarch found his three friends "miserable comforters," annoying him in the extreme when they verily thought they were doing right but these school-room comforters annoy when they verily know they are doing wrong ; do it, too, "with malice aforethought," on purpose to torment the teacher. This, however, to their credit be it said, is usually done before they discover that the teacher is consulting their comfort and best interests. They find the opportunity and they improve it. They see that they can vex the master, and they do it unscrupulously, venturing often beyond what they really at first meant to do ; for they certainly did not mean to be caught—to be exposed, to be punished.

There is, at times, a shrewdness in planning and perfecting a mischievous plot or act, seen in the miniature statesman or diplomatist, worthy a better object. There is tact, ingenuity, judgment, and often real wit displayed ; so much so that even the best disciplinarian is sometimes put to stand to know exactly how to treat the case. That it needs correction in some form or other is plain ; but just how to apply the corrective machinery, he scarcely knows. To inflict the ferule treatment may, for some reasons, seem the most feasible, and possibly the only available method. Perhaps it is so, and it should be dealt out to a discretionary length : nevertheless we hope, in the sequel, to point out "a more excellent way" than even this good, all-time-honored sovereign remedy ; though at the same time, most cordially do we subscribe to Solomon's sentiment that the rod, in certain cases, is indispensable.

But we are now depicting the embarrassments, not the remedies ; and however we may feel disposed to treat it, the inherent mischievousness of some of our common-school frequenters must stand confessed to be a source of no slight annoyance, especially in district schools, where teachers are changed so frequently, and where a different system of school-government is adopted, it may be, by each individual instructor. The pupils come to acquire a habit of experimenting, particularly with a new teacher ; and in some districts the difficulty not only remains, but grows ; each succeeding teacher, unless he be a well-qualified disciplinarian,

leaving a new increment of embarrassment to his successor, glad, as he departs, to get rid of the persistent annoyance.

IV. Intimately connected with the above, though from another source, yet at the same time tending to enhance this very difficulty, is another, viz.: Youth and inexperience in teachers.

Far be it from us to assert that youth alone in the instructor is the exciting cause, or the invariable concomitant of defective discipline. Many young teachers have succeeded far more easily and quickly in reducing confusion to order in the school-room, than others who were many years their seniors. The look and bearing of age are by no means a perfect guarantee of secured and sustained authority in the miniature kingdom where the teacher rules. Nor is it so invariably in any sphere or position in life.

But, at the same time, the mischievously inclined pupils always take advantage of inexperience in the teacher if they can. They try it. They develop its capability, often to the serious disadvantage of the would-be-perfect disciplinarian.

Scholars always think, till they find by experience the contrary, that they can venture farther with a fledgling teacher, little, if any, older than many of their own number, than they would dare to, other things being equal, with one of more commanding appearance and weight of years.

To the credit however of many, perhaps the majority of our district school teachers, be it said that they nobly sustain their standing before their schools, notwithstanding years are not theirs by scores, to give dignity to their presence and force to their authority. But of some this commendation would hardly apply; at all events their inadvertencies and indiscretions (usually the result of inexperience), become a detriment to them, both as respects their present and their future reputation, as successful disciplinarians. For without discipline, order is impossible; and without order, where is the guarantee for rapid advancement in the pupils? Scholars may improve even rapidly under inferiorly qualified instructors; but under defective disciplinarians, little or none; or if they do, it is due to their own, and not to their teachers' assiduity.

Hence where there is so frequent changing of teachers as

there is in some of our districts, and consequently where correspondingly more is demanded of the teacher in the way of discipline—perhaps we look upon it partially, nevertheless it is an honest conviction, drawn not from casual but from a pretty extensive scope of observation—we feel constrained to enter a protest against this too great eagerness on the part of youthful aspirants; and perhaps too much laxness, or possibly oversight, and it may in some cases be partiality, on the part of trustees and county superintendents, in encouraging persons of either sex to assume the responsibilities of public school teaching at too early an age. It is, we are persuaded, one prominent cause of our schools being so inefficiently manned and so loosely kept. Discipline, almost of necessity, is sustained at a disadvantage, and its benefits impaired, not intentionally perhaps, but nevertheless effectively, and the evils of misgovernment entailed upon the school.

But we repeat it, youth in the teacher is not an insuperable obstacle to thorough discipline. It is an embarrassment felt, and in some instances seen in lamentable prominence. But where thorough culture is possessed, it need not be so.

The young, as well as the more advanced and experienced, may rise above all the draw-backs and difficulties surrounding them, and take their stand in the front rank of able disciplinarians. We honor the young man, or young woman, who has energy and force of mind sufficient to meet and triumph over all the impediments to success, which lie so thick along the track of the youthful and inexperienced. To such is justly due the higher respect for successes achieved amid so many, and so formidable obstacles.

V. There is another, and in many respects perhaps still more serious impediment to success in maintaining a due degree of order in the school-room. It is found not in the patrons, nor in the pupils, but in the teacher himself; we refer to the hasty and precipitous manner in which punishment is often administered by unguarded disciplinarians.

There is nothing more completely subversive of respect and authority in the teacher, than to be seen by his school inflicting penalty, with or without just cause, in an excited, passionate manner, or as if prompted in it by either spite or

anger. Children are very quick to discern excitability, if there exist any tendency to it, in the master; and they will give him a world of trouble if they find him open to irritation or bluster. They will do things on purpose to harass, when they would hardly think of doing the same to a more self-collected imperturbable teacher.

It is because of the liability to this very evil that we object, as already intimated, to teachers taking the responsible charge of a school at too young an age, when the very excess of desire to succeed may betray into precipitancy in the exercise of discipline. There is far more danger that inexperience will precipitate the best of plans, than there is that youthfulness will devise wrong ones; for none are so strenuous to carry out what is deemed essential to good order in the school-room, as young teachers; and yet none so easily mistake the medium to be reached. They not unfrequently begin by laying down rules—perhaps stringent and minute—designed to secure the very best results. But their very stringency and minutiae, it may be, overreach the mark, and open the way for trespass; and then comes the point of danger. There is liability just there, that the young teacher mistake self-will for dignity, and passion for prudence. It is natural for one little experienced in teaching to feel that all depends upon maintaining his side, to the yielding of the pupil's, be it right or wrong. The point at issue is conceived to be, not the securance of respect to rule, but to the will of the master.

We grant that there may be cases where the teacher does right, does the only thing practicable, in asserting and enforcing his simple word. But, it must be borne in mind, it will result in good only when the teacher has not only right on his side, but perfect self-possession: when, too, the will of the teacher and the will of the scholar are in open conflict, and not when the teacher's self-will is set above right or reason, both in the pupil and in the master. If there ever arises a case in which will meets will thus in warring attitude, let the teacher, as he values his standing as a disciplinarian, and as he counts of worth his command, or authority in the school-room, beware of precipitation and excited feeling exhibited before the school. Let action, in the criti-

cal case, be the prompting of calm judgment and discretion, never of passion. Let the school be witness of the equanimity with which the teacher holds the reins of authority, and he will pass the crisis triumphant, with his word respected, his character as a firm yet judicious disciplinarian untarnished.

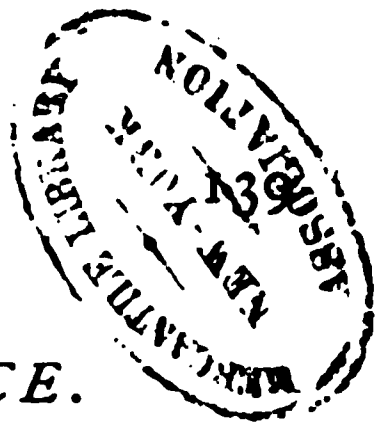
There are times when yielding, on the part of the teacher, is wisdom; nay, when it is absolutely essential to success. The teacher may gain his point, but lose his respect; he may carry out his will, but ruin his influence.

Children always respect the candid, noble-minded instructor, who can see and appreciate their rights, as well as his own; and they will repay him in manifold measure, his liberal recognition of their interest and sentiments of honor, both in yielding him a more cordial and prompt obedience, and in aiding him, by countenance and co-operative acts, in sustaining the discipline which they, as well as he, see to be so essential to rapid improvement.

OLIVER CRANE.

WHAT A MAN KNOWS.—What a man can write out clearly, correctly, and briefly, without book or reference of any kind, that he undoubtedly knows, whatever else he may be ignorant of. For knowledge that falls short of that—knowledge that is vague, hazy, indistinct, uncertain—I for one profess no respect at all. And I believe there never was a time or country where the influences of careful training were in that respect more needed. Men live in haste, write in haste—I was going to say think in haste, only that the word thinking is hardly applicable to that large number who, for the most part, purchase their daily allowance of thought ready made. You find ten times more people now than ever before who can string words together with facility, and with a general idea of their meaning, and are ready with a theory of some kind about most matters. All that is very well as far as it goes, but it is one thing to be able to do this and quite another to know how to use words as they should be used, or really to have thought out the subject which you discuss.—*Lord Stanley.*

The Teaching of Science.



THE TEACHING OF SCIENCE.

[PART SECOND.]

IF there be any lesson which is taught us by Science it is this—that to be helped we must help ourselves; and that which is a meaningless accident to some, is the material of a discovery to those from whose eyes previous thought has removed the scales. Whence, not only before but during the lectures too, it is well to recommend some reading, and continual observations and rude experiments on points connected therewith; for one thing done is worth a thousand heard; and there is a great solver of many difficulties and a great guide to truth in something looked at and investigated for ourselves, something experimental, upon which to base our argument. For there is no success in Science—nay, and I would fancy there is no success in anything—which is not based upon such a procedure. And it is a method which the world stands vastly in need of learning just now; for, though we boast of ours as being a very scientific age, the multitude therein are going under cover of the character of a few. But among the greater part of mankind there is a great evil, the evil of speculation unbridled by experiment; for experiment is the great tamer of wild theory. But hypothetical experiments may be bandied about easily, and hypothesis is grandly favorable to a preconception. Hence it is that many fair wits in the world, full of speculation and full of power and full of leisure, are all astray as to their knowledge of things, and tossed on the waves of their own theories, from the lack of that “fountain of the rivers of our arts,” real experiment, the habit of which education is at present too little given to foster, and without which history tells us, and our own experience might show us, no question of Physical Science can be determined. I talk of Physical Science—I would go farther, and speak of moral things. It seems to me that the whole of our true knowledge of all things, material and of the Soul alike, is founded on experiment—various indeed in the two cases, but yet experiment;—that is, knowledge

gained by ourselves, the immediate result of our own labor, free from preconception.

Much theory is founded on the imaginary results of hypothetical experiments; between which kind of theory and that which is founded on experiment actually made with our own hands, and seen with our own eyes, there is a difference so vast as to be comprehended in no argument, but to be learned only by the experience of that magic which there is in our recognition of the magnitude and reality of things as altogether apart from our views of them. For there are two kinds of theorists. There are those who make a great framework which is their theory, and into which they fit the facts; and there are those whose theory is like a map of the things, which are placed thereby more within the grasp of our immediate handling. For things are real and existing, and we wander among them and look; and the true spirit of Science recognizes the greatness of things as compared with our views of them, which views are fleeting, and moulded variously according to our vantage-ground.

What shall we say then of those who, destitute of the spirit of true Science, would compel a whole prospect within the limits of their theory, to whose imagining the double-sided shield can only be the metal it presents? There is but one thing they want, which is Humility; whence it is that there rise about us such mazes of man's conceptions, buildings of sophistries, concealed assumptions, and procrustean beds.

And lest any think that in these remarks I have sprung to too great a generality but too faintly connected with the subject in hand, it is to be remembered that it is from the lack of that which I would call the true spirit of Science that Science is sometimes objected to for the education of women. To deny to women the study of Science is a procedure which begets its own argument; as, if I were to beat a child for future crimes, the future would most likely justify that punishment, which vicious circle of action is bended round a preconception. And our attempt to bend things to our preconceived notion of what they should be is the fundamental of many errors.

The absence of the true Scientific spirit in our day is nowhere more evident than in the popular judgment of this matter of the Education of women. There is scarcely any subject on which there is among men so much dogmatic assertion based on the imaginary results of a hypothetical experiment, and sometimes having not even so much basis as this. It has been affirmed, and not in this age and country alone, that women do not *need* to be taught Science, an immediate and direct utility being all that has been kept in view, and the true end lost sight of.

By some it is maintained that women do not need to learn Science to make them better women or abler to help and bless the world, and also that they are incapable of being scientifically educated. Those who make this double assertion are consistent, so far as their theory goes ; for if their theory be true, God has done wisely in so far that He has limited the capacity to the need, as in the case of the lower animals, to whom He has given neither the need nor the capacity for a scientific education. But experiment, so far as it has gone in the education of women, has thrown these unscientific persons into an inconsistency. For they either have to prove in the face of experiment, by some arguments not yet discovered, that their position is a consistent one, or they have to give up their position ; the only other alternative being that they should accuse the Creator of women of a great folly. For when they confess (and now facts drive them to this confession) that women are very capable indeed of receiving a true scientific education, and while they at the same time declare that women do not need such scientific education, inasmuch as it will not, they say, make them better women, wives, and mothers, they traduce the wisdom of God, who gave to these women the capacity for Science, and who has adjusted every means to an end, as Science hath itself shown, and every gift to some good result to be wrought out by the use of it. And hercin, they being not only theorizers on this head, but being the stronger, and therefore practically the awarders to women of such share in the means of knowledge and education as they think fit to grant to them, they are not only impugnors of the loving wisdom of God, who adapted women's brains

wisely to the end which He designed for their exercise, but they create a great moral evil, and a sorrow, and a loss, by this shutting up of powers, and by this denial to women of the means of using and improving the good gifts which they have got. Truly those who will not base their theories concerning such weighty things on true experiment are continually driven to accuse God of folly, as palpably as a zoologist would who should shut up an eagle within a narrow cage for its life, and then assert that it never mounted into the air, could not do so, and did not need to do so, albeit he had found by examination that its pinions were so constructed as to lift it forward and upward with a great strength and swiftness.

Now, speaking from experience, I should readily say that there is as great an aptitude for the study of these things in the mind of a woman of average capacity as in the mind of a man of the same. For, of all things, that which is required to pursue the study of Science is that which that study doth itself generate—a certain humility of mind, which I think I have observed, at least in these matters, to be greater among women than among men—whereby they are led to hold their conclusions rather in suspense, which is the desirable state of mind for the pursuit of Science.

But there is one objection which I believe to lie near the heart of many people when it is proposed that Science should be taught to women, or at any rate when it is proposed that it should form an introduction to their education, and any large portion of it: that is, that it is a kind of study which unfits them for the duties which more particularly belong to them; it is, say they, a harsh, masculine sort of study; it is one opposed to woman's grace and woman's simplicity; to that noble character of a true woman, which is so fair a thing in the world. This is an objection to which, if it were valid, I would readily give place, very different from that unkindly one which would deny them the study of it because they do not clamor for it. Yet I do not fear but that Nature will ever vindicate herself, and the glorious character of true womanhood would rise from all the attacks of a false Science; for I have seen it rise hitherto above the lack of true Science. Nor am I so dis-

trustful of the strength of woman's nature as to think it to be in such unstable equilibrium. Nay, but there is in woman's nature that peculiar union of humility and of conviction which all Science is, as I would take it, God-sent into the world to teach, whereby she is led to assimilate those lessons therein to which her own heart is tuned, as in music those strings that are tuned to a certain note do vibrate when that note is sounded.

There are many women who are now saying, after but a short period of instruction in Science, that they look upon these studies as little less than divine. Whereby they mean that they have brought to their minds and hearts a degree of that help and strength, light and health, which they are accustomed to recognize as a direct gift from God, whether He sends them by means of these messages of His which are hidden up and down everywhere in the natural world, or in answer to the prayer of the humble soul without these things. They say that these studies supply them with a constant store of great thoughts; and in this they are a true blessing to them; for inasmuch as the thoughts which usually press most on the minds of women are of too personal and subjective a kind, and are connected with the troubled and unrestful life of man on earth, and with the small details and anxious cares of daily living, the thoughts engendered by the study of the Mathematics and Physical Science, in most of its branches at least, are above all these, in a calm region wherein we find inexhaustible matter for wonder, and joy, and worship, and praise. And we do the duties of earth better when our minds dwell among the harmonies of God, and not always among the discords of human society. Women have often said that they were able to return with a calm mind to the right performance of domestic work after going out to gaze for awhile upon the great multitude of stars on a cloudless night; and they now say that the calmness and strength so attained is far more permanent and real when to the mere sentiment of beauty, which however may be a powerful aid, is added some knowledge of the wondrous working, in the laws which regulate the universe, of the Supreme will and control of Him who made them all.

THE VALUE OF EDUCATION.

THERE are few things about which people are so much agreed as on the value of education. Though they are not prepared very often to explain what they mean by education, and not very apt in determining what its value is, they assent to the general statement that it is of the highest value, without hesitation, and on all occasions. It is not difficult to explain why the precise appreciation of its value is rare, and why the precise signification of the word "education" is seldom arrived at. To make out, however, what each of these terms imports, is of prime necessity.

Education differs from information or knowledge. The latter is of a special character, the purport of which is to fit a man for bringing about certain definite results by the immediate operation of that knowledge which he possesses. We talk, indeed, of the education of a lawyer, a doctor, and a clergyman—of an engineer, a soldier, or a sailor; generally meaning by it the information or knowledge which he has acquired for the immediate exercise of his vocation. But law, medicine, divinity, mechanics, strategics and navigation are not education. A man may possess any one of them and be well nigh illiterate, though of course some can more possibly co-exist with want of education than others. One can conceive that a man may have a profound practical acquaintance with law, and be an uneducated person. Again, to quote an instance, the first Duke of Marlborough was one of the most skillful generals ever known, but he could not spell, and hardly write. Some men who have had the most marvellous aptitude and quickness in mechanical science, have been unable from sheer ignorance to sustain a common conversation.

Education, on the other hand, deals with formalities. It does not aim so much at setting the mind right on particular points, as on getting the mind into the way of being right. It does not deal with matter, but with method. It purposes to train the thinking powers of man, not to fill the mind with facts. Hence, were it perfect, it would cultivate

the intelligence so largely as to render easy the acquisition of any knowledge. It deals in short, either directly or indirectly, with logical order and the reasoning powers. That it falls short of effecting what it purposes, is due to defects in its system, to defects in man's mind, to defects in this or that man's mind. As, however, its operation is not immediate, but only indirect, its best methods are frequently cavilled at as useless.

It may teach the logical method of thinking and reasoning. This, however, is generally too abstract for most minds, except they be more or less matured, and more or less informed on one or two subjects. In place of this, then, it teaches ordinarily something, which is as exact an illustration of logical method as can be, and which, being unfailing in its inferences, trains the mind in method, and often stores it with facts. In a greater or less degree, but in some degree at least, this inculcation of an abstract method is necessary for any kind of education, and even, except it be a mere knack, for information.

Reading and writing even are educational methods. The letters of the alphabet are abstract and arbitrary signs, the comprehension of which requires a certain amount of attention, and a separation, for a time at least, between the thing signified and the sign. After a time the use and formation of letters become almost mechanical arts, though this is, to be sure, the case with all perfect methods; for what we call a mechanical process in the mind, means a habit, the exercise of which is so rapid, that we are unable to follow it, and so sure about it as not to need to follow it. Arithmetic, the science of abstract numbers, is an educational method of great and well nigh universal necessity, though it is also of great practical utility in its application to details and facts. By far the majority of people who learn arithmetic fully, never need use more than its simplest rules. So, in a still more marked way, it is with geometry, and certain other familiar educational processes. To illustrate these methods, however, we need the presence of a certain number of facts, and to arrange and classify these facts we need more or less of these methods.

Now, it is plain that some of these methods have so obvi-

ous and universal a practical application that they must be possessed by everybody who wishes to carry on, except in the lowest station, the commonest business of life. Hence they are looked on as pieces of knowledge or information as they have a direct result. Thus it is that the confusion commences between education and information. It is not difficult to put knowledge and method in strong contrast, but it is not easy to say where method ends and knowledge begins.

The value of education is measured by three rules. What is it worth to the individual possessing it? What is the worth which society assigns to it? What is its material worth, or, in other words, what advantages are connected with it, which may be reduced with greater or less exactness to dollars and cents? The first of these aspects of the value of education is apt to be measured by the other two; but unless a man is to merely live by other people's good opinion, or to merely follow that which will increase his balance at his banker's, the first has a fair claim to independent consideration.

All judgments which have been worked out by a man's own mind, all general principles which have influenced society, all directions of original thought, have come from the first of these values of education. In the worth of education to the individual who has it, lie all the facts of human progress, and all hope of human progress. And in it, too, are all the consolations of the man himself, whether they be escape from prevalent error, or relief from the toil of labor, or the shield of a rational self-respect.

The social worth of education is not so great indeed as it might be, but it is very large. It is true that the immediate product of certain branches of information is so visible and so tangible that the disposition of mankind would be to sacrifice method to knowledge, were it not for the urgency of competition among those who possess knowledge, and among whom the man who has at once method and knowledge is pretty sure to win the day. The influence of educated men on society, and the respect of society to educated men, would be more general, and more reciprocally beneficial, if more educated men applied their method to the

ordinary business of life. That they do not do so, is perhaps in great degree the fault of those institutions where the best education is given. I have not the slightest doubt that a person who has studied successfully, as he would do if he studied honestly, at the universities, would in trade, or any other business, speedily outrun competitors who had not the same advantages as himself. They do so ordinarily in those occupations which they undertake. They would do so in more, were not the expenses of the universities at serious impediments to their popularity.

There is a popular, but I believe very shallow notion that the course of academical instruction is not useful. It is not worth while to revive a discussion settled long since, about the relative advantages of what are called practical sciences, and what is called mere mental culture. It is sufficient to say that the world would go on very poorly without both. Exclusive cultivation of mere physical knowledge would leave a very intelligible gap in those moral and intellectual forces which for good or evil, but especially for good, have such weight for the collective destinies of mankind. That mere mental culture should supersede the development of the knowledge of the material universe is unlikely; the danger is and has been on the other side, and this with but one exceptional period from the beginning of history. The advantage of an acquaintance with some branch of practical philosophy is so obvious and immediate that one is perpetually reminded of the risks which educational method runs in either being confounded with the knowledge of facts, or of being ignored altogether, or of the experts in the one branch of human science disdaining and disliking contact with the other, and men being divided as to the most fundamental securities of progress and civilization. It was with reason that Bacon asserted that his logic of facts would equalize all intellects. But great as the vantage ground is which is promised for such learning by those simple rules of inference which he first called attention to, the result has been that the mere acquaintance with such a method has caused it to cease from being an engine of education properly so called.—*Prof. J. E. T. Rogers, "Education in Oxford."*

*AGASSIZ IN NEUFCHATEL.—HUMBOLDT AND
THE FRENCH ACADEMY.*

[FIRST PART.]

IT is often of peculiar interest to observe great men in their undress. Ever since Macaulay remarked that for a delineation of James the First's character we must resort rather to the "Fortunes of Nigel" than to Hume or Lingard, historians have not disdained to search for their material in parlors and drawing-rooms. We hardly need this excuse when we lay before our readers a sparkling narrative from the pen of Carl Vogt,¹ the zoologist and ethnologist, referring to the names mentioned above. We hope that we shall offend neither the "manes" of the one, nor the great living soul of the other, by publishing incidents which, it is true, will detract something from the nimbus of the great dead, but cannot possibly lessen the feeling of reverence which the mere name of Agassiz awakens in the breast of all Americans. Let us listen then to Vogt's² narrative.

I spent the five years, from 1840 to August, 1844, with Agassiz and Desor in Neufchatel, which at that time, being still a Prussian Principality, was closely connected with the Berlin Court by furnishing valets and governesses from the lower, and diplomats from the higher orders of its population. Our connection was dissolved by my translation to Paris, while Agassiz was about to migrate to America—his debts driving him over the water. Goethe's verses :

Wiedersacher, Weiber, Schulden,
Ach ! kein Ritter wird sie los !

might always have been strictly applied to him.

The city of Neufchatel was unquestionably one of the most boresome abodes in the world. It was governed by a *conseil municipal*, consisting of nine members, but being

¹ Published in the *Leipsic Gartenlaube* for January, 1870.

² We would remark here that Vogt's trustworthiness in matters of fact is beyond question, whatever may be our opinion on the soundness of his zoological and ethnological systems.

known by the queer title "Messieurs les quatre Ministraux," because—as popular wit would have it—they had, although nine in number, only the intellect of four. The town contained no more than six thousand inhabitants, and yet it boasted of a "grand conseil," consisting of one hundred members, who every Monday would repair to their hall in short breeches, silk stockings, and cloaks with white trimmings. So secret¹ did they keep their transactions that not even the beadle was allowed to enter the hall, it being the duty of the junior member to open the door at the beadle's knocking, and transact business with him outside. And so proud were they of their citizenship of Neufchatel, that, when Agassiz was almost simultaneously elected an honorary citizen of Neufchatel and a member of the French Institute, there was a very lively discussion among the people as to which of the two honors was the greater, till they agreed that it was clearly the citizenship of Neufchatel, seeing that so large a number of scholars had been already promoted to a membership of the Institute, but none as yet to the honorary citizenship of Neufchatel.

The variations and excitements that were occasionally brought on our monotonous life in Neufchatel consisted in divers trips to the neighborhood, with its grand scenery, and to the glaziers; in visits of strangers and scientific brethren; but especially in Agassiz's correspondence with Humboldt. Every time that Agassiz's funds were at low tide, and there was no prospect of any help whatever, even at the most distant horizon, a piteous cry for help was dispatched to Humboldt, who, good natured as he was, would then set to work to squeeze out of his royal friend,¹ under a more or less plausible pretext, some "solid dollars." Sometimes the *thalers* came as a "contribution for investigating fossil fish," sometimes as a "purse for a scientific expedition to the glaziers," sometimes it was an "extraordinary gratification" that relieved my friend's necessities. But even when nothing came, Humboldt would never fail to encourage him with promises of better times, and the perspective of "his monarch being in a giving mood." Hence

¹ Frederick William IV. of Prussia.

the excitement, which the arrival of such a long-expected missive would always create, may easily be imagined. All classes of "scribes and experts in the art of writing" were called in to decipher the mysterious lines; all kinds of magnifying glasses were applied to the hieroglyphs, which encroached from one corner of the letter into the other. Among these experts was Guyot, a geographer, who had studied under Carl Ritter; and Montvert, the librarian, who, with four anecdotes in his possession, which he used to deliver in a masterly manner, had been for forty years the indispensable "make-laugh" of all dinner parties. The work of deciphering was ultimately accomplished, though it often required several days' labor. On such occasions we never failed to excuse the excellent man with his travels on the Oronoco river, where, in default of a desk, he had contracted the habit of writing on his knees. It is true that sometimes in the course of such a labor a gentle curse may have escaped our lips, but still Humboldt's image was always before our minds as a being of the utmost kindness and benevolence, who was doing everything in his power for his friends and favorites (and Agassiz was among the foremost of them). With anxious punctuality, Agassiz answered every letter, and always contrived to combine in his answer good nature, geniality, and pointed wit. We did not, any of us, know Humboldt personally; still these traits of his character were not less imprinted in our souls than were those of his portrait. Now and then he would ask in his "answers" after the one or the other subject of Agassiz' specialties, and these inquiries were always worded in so precise and clear a manner as to show at once how perfectly he would master the reply in its whole range.

But the image that we had conceived of Humboldt was soon to be completed by new and altogether unexpected features. I came to Paris in August, 1844, having few chances and still less money, but with the firm purpose to stand on my own feet. I had some letters of introduction. The reports on the Transactions of the Academy of Sciences, which I had to make for Cotta's *Allgemeine Zeitung*, kept my head above water—at least, financially. My scientific works on the development of the Trout and the Toad

had likewise opened to me some avenues. I took my quarters in the old *hotel garni* of *Rue Copcau*, which at that time was the resort of all foreign scientists. Here Straus, of Dürkheim, his eyes always covered with a green screen, presided over the dinner-table. His celebrated treatise on the May-Bug had gained to him the nickname *May-bug*. He had a perfect mania for explaining to every new comer how the anatomy of insects ought to be managed. He asserted that the only way to perform the different operations properly was to sit in just such an arm chair *à la Louis Quinze* as he had in his study—the chair must have just such an indentation—the right hand ought to be supported in a peculiar way, and so the left, etc., etc. Each room in the hotel had a particular name, according to the scientists that had lodged in it, as Johannes Müller, Meckel, Rudolphi, Matteucci, Agassiz, Kohn.

The Academy of Sciences was then split into two parties. The head of the one was Alexander Brogniart, formerly Cuvier's associate for the geological part of his large work. The other party followed the lead of Arago. There were some few "neutrals," Blainville among their number, who were "incalculable." The Brogniartists were devoted to Louis Phillippe's government, while Arago's adherents belonged to the opposition. My connection with Brogniart had been formed by Milne-Edwards, who had always shown great interest in me. For Arago's acquaintance I was indebted to Martin, of Strasbourg, who had visited us on the Aar-glazier. Whenever Brogniart and Arago agreed about an election, the candidate might take it easy; but if the two leaders disagreed, the most ferocious battles would ensue. Arago, as a true Provençal could never keep or pronounce my name; but having once (though unsuccessfully) attempted to learn German from Schiller's Tell, he adopted the expedient of calling me "Gessler."¹

Since Humboldt was personally and intimately acquainted with both leaders, and with the older coryphees of the Academy, it will easily be understood how it came that he could exercise such an unbounded influence in the

¹ Gessler, as the reader will remember, was the Governor (*Vogt*) of Uri.

affairs of this institution. I myself heard him "*thouing*" Arago, which in France is customary only among classmates. With Brogniart he had been on the most intimate terms ever since Cuvier's times; with Biot, Gay Lussac, Chevreuil, he was connected by a friendship of long standing. Thus it came that the elections for new members of the Academy were not made in Paris, but in Berlin, as a friend of mine told me. The candidates first of all applied to Humboldt, who would himself come to Paris in their behalf, if they stood in particular favor with him. My readers are aware that a chair in the Academy is the much coveted aim of every Frenchman from the time he first enters on the field of science. In order to carry this prize his whole ambition is stirred, and all his efforts are strained to the utmost. Thus Humboldt's favor was sought and coveted by every one. I have been frequently asked by quite young people, who could not possibly obtain this honor in less than twenty years, whether I was acquainted with Humboldt. When I gave an answer in the negative, and added that I had not even made use of my friendship with Agassiz for this purpose, they would shake their heads, and give me distinctly to understand, that they had not too high an idea of my wits.

It happened just then that one of the chairs in the zoological section was vacant, and the race among the candidates was hot. The reader must know that a candidate for member of the Academy is the most pitiable creature in the world. Several months before election-day he hires a carriage for the whole day, and drives around the streets of Paris from early in the morning till after midnight in order to pay innumerable visits. He has one or two friends that are working for him; to these he reports daily and listens to their instructions and advice. Not only is he bound to call on all the members of the Academy, but also on their relatives and friends who might use their influence in his favor. He must rush from one parlor into the other, and play the amiable in all: here he must win over the lady of the house, there he must conciliate an old maiden with whom one or another of the aged members is wont to play a game of dominos. He must learn by heart a complete list of his different merits and claims, and repeat this lesson to all.

A list of all his literary works and articles he must have ready in print. If possible he reads at every session of the Academy a new paper, in order to attract attention; and for this purpose he has to bother not only the president and all the secretaries, but also the orators inscribe before him, to yield their places to him: in short he must be ubiquitous. At the close of such a campaign, the candidate is wan and haggard like a spectre, and when he finally obtains the chair, he sinks into it completely worn out and exhausted, and sometimes has enough of it for the rest of his life.

Valenciennes, the Zoologist, had for many years been living the still-life of a plant in the *jardin des plantes*. He was a good natured, fat, short-breathed gentleman, who vastly preferred a good and substantial dinner to any kind of work, and as to sauntering in the *jardin* in slippers and night gown, and feeding his favorite parrot—an intolerable, nasty creature—he liked that decidedly better than continuing his large work on fishes, of which he had to bring forth one volume a year, according to an engagement made with Cuvier. He had just intellect enough to distinguish one species from the other and to make a tolerable statement thereof, but in a French so horrible that he had become notorious for it all over the country. He had also compiled some zoological articles for Humboldt's large work—reason enough, why Humboldt (who has often been reproached with being partial for mediocrity) should decidedly patronize him.

One day when I was walking past his house, a gentleman in full dress ran against me. I recognized Valenciennes, panting like a furnace, his eyes standing out of their sockets. "What in the world is the matter with you?" cried I, "Ah, it is you," said he, "is there any carriage here?"—"Yes, at street corner."—"Adieu! I must be off." A few yards further on, I met my friend Lemercier, the assistant librarian of the *jardin des plantes*, who had taken a special fancy for me on account of my obliging him now and then by translating the titles of German books into French. "Do you know," said I, "what is going on with Valenciennes? He was rushing out of the garden, and almost ran me down."—"Was he in a dress coat?" asked Lemercier.—"He was."—"Then Savigny must be very sick indeed." On my remark-

ing that I had heard Savigny was dying, my friend exclaimed: "Then it is clear. Valenciennes is commencing his visits, even before his predecessor is dead. He would be apt to make a call on the dying man—to solicit his vote!"

Indeed, Savigny died a few days later. He had been the last surviving member of that renowned scientific expedition which accompanied Bonaparte into Egypt. All the closing years of his life he had been blind, sick, in the utmost poverty and destitution. And the Academy paid for his relief the enormous sum of about 1,000 francs a year, the very amount he was entitled to, if he could have been present at the meetings. That was the reward of one of the greatest searchers in science, one who had discovered and proved¹ the original identity of the masticating and sucking insects, and had shown the gradual metamorphosis of the one into the other.

SYSTEMATIC TECHNICAL EDUCATION.

PART IV.—TEACHERS.

OUR next business is with the teachers of our philosophy. Whom shall we have? Where shall we seek them? What duties shall we give to each?

1. In the department of the philosophy of form it is quite plain that we must have one professor of the mathematical sciences; and if our university were an elementary school, a single professorship of mathematics might be deemed enough for all that could be taught or learned; but every student of higher mathematics knows that there are two great organs of mathematical investigation—geometrical analysis, and algebraical analysis,—and that their nature, laws, and methods, are essentially distinct. The calculus ignores as much as possible the specialities of the quantities with which it deals, and regards as nearly as possible their abstract relations.

(1) This will be disputed by all Zoologists not belonging to the Darwinian school.—TRANSLATOR—

Geometrical calculus, on the other hand, finds all its elements in a very few species of quantity, comprehending at the most but three dimensions, and extending merely its own laws by analogy into the phenomena of other quantity. Subordinate then to our professorship of mathematics are at least two professors or teachers, the one of geometry, the other of calculus.

But even this subdivision of mathematics by two is not enough for our high university. Discrete quantities are of a familiar sort that mix themselves up with all the measurable questions of matter and common life, and therefore the philosophy of number covers one large kingdom of thought, embracing all the phenomena of matter, and all the relations of human life which we are able to render exact by establishing precise measures of space, time, bulk, direction, weight, force, or commercial value.

A professor, then, of the philosophy of number must find a chair in our university; and beside him we must seat another—the professor who treats quantities not as the vulgar units of common arithmetic, but who represents all quantities, all their relations in all possible permutations, combinations, and fluctuations, by means of abstract quantities, signs, and symbols; who undertakes to forethink and predict all the possible and impossible combinations of all conceivable quantities in all conceivable relations. That is quite enough for any human being, and entitles its master to fill a separate chair.

The geometrical professor also, though limiting the objects of his study to conceivable form and place, and their actual and conceivable changes, has a simpler task. The discrimination, the naming, the definition, the construction and the representation of all the possible forms of things under heaven, in the earth, and in human thought, is surely a large enough occupation for a single human mind, especially if, in addition to grasping all this himself, he has to find the means of making all these thoughts enter clearly in to the minds of others, and in that alone is duty enough for a single chair. But when we go further, and follow the geometer into all the laws of transformation of shape, size, and place, and pass with him through all the fluctuations

which every conceivable relation of space, place, direction, distance, and size can give to growing, dwindling, or transforming shapes, then we have a field open to us of higher and transcendental geometry, sufficiently arduous, and entirely boundless, so that its value, usefulness, and grasp are entirely measured by the greatness of the mind of the professor to whom we call upon to assume the chair of the higher geometry. Search we then the wide world round, here are four chairs capable of occupying the minds of a Newton, a Descartes, a Leibnitz, and a Gauss, if we can find them.

Four professorships are, therefore, the smallest number we can found in our university for the mathematical sciences. Two in the divisions of calculus, and two in the divisions of geometry. If we are more liberal, we should found also two superior professorships—one of the calculus, and one of geometry, not limiting either to one of its divisions, but grasping the mutual relations of both. And if we were still more wise and foreseeing, we should place one other high philosopher at the head of this whole philosophy to develop the laws and expound the principles which group together all the elements of mathematical knowledge into one high philosophy—a philosophy of exact thinking, and of boundless discovery; to teach men, if possible, the thought of God, the great geometer.

2. In the department of the philosophy of physics, or the philosophy of the substance, stuff or matter which fills the visible forms with which we are surrounded, and gives to them force, power, quality, and energetic being, is probably the most immediately important and fundamental of earthly knowledge. The properties of the dead and living matter, of the still or moving matter with which man has to deal, and of which the world, ourselves, and all things in it are made, *that* may be thought the true matter of knowledge, and indeed it is perhaps in a higher degree modern science than any other human knowledge. Quantity, number, form, and place were known to the ancients; the heavens, the earth, and the sea were studied by them, and some of the natures of vegetable and animal structure and some of the laws of vegetable and animal life, were familiar to them. But the laws of the familiar phenomena

of matter and force were unknown to them, so that they could neither handle a tool, fire a shot, nor create a machine with a true knowledge of what that tool would do, where the fired shot would arrive, or what the created engine would achieve.

What we, therefore, call the physics of common life, and its philosophy the common laws of matter, were comparatively little known to the ancients; and the philosophy of substance, of force, of matter power, and matter nature, is of the essence of modern material philosophy. A high professorship of the philosophy of matter force and substance may well be founded in our university, and a chair of general physics will find ample occupation for pupils and teachers.

But modern matter discovery has overleapt the bounds of those sciences which treat all matter substance and force as one. That all matter obeys one law, and that all physical force is of one nature, is an old doctrine, and the alchemist who sought to transform earth or iron into gold only expressed his conviction of the physical unity of matter. Modern chemistry has dissolved ancient physics and alchemy, and may be said, by its analysis, to have created a new world—a new world of matter and a new world of thought; and so modern matter philosophy consists of two quite distinct and equal regions of subjects and of thought—the physical phenomena of matter, and the chemical phenomena of matter. For our university, therefore, are necessary a school of physics, and a school of chemics; one professor or more of physical science; one professor or more of chemical science. But even that physics which is concerned with matter in general must be broken down into branches of study. First must be examined and taught the properties which belong to all matter, and the phenomena which matter and its laws exhibit to us; and in order that we may govern matter, we must ourselves master the nature of all those forces which it can exert or will obey; and so the laws of force found for us a chair of dynamics, and the phenomena of matter provide for us the object of another chair, to master and teach all the phenomena which matter exhibits to us, and to follow certain laws through all the

transformations of matter, as the same substance becomes first a solid, next a liquid, or is finally dissolved into an impalpable but real. The laws of force are, then, the subject of one chair, and the phenomena of matter the subject of another, both comprehensive divisions of the physical departments of the philosophy of substance.

After the phenomena and forces growing out of matter governing it, we must consider the properties and forces which belong to or grow out of one kind of matter, and which some other kind of matter has nothing to do with. It is the modern chemist who has discovered that there are many kinds of matter which have nothing in common with others, properties which essentially distinguish one kind of matter from another, and render it impossible to apply one to the purposes of the other. A hammer, as a mechanical tool, would be equally good for most uses, whether made of brass, steel, copper, or any other sort of matter; but a chemical tool made of any one of these substances might be totally unfit for any other purpose to which it might be applied.

It is these differences in the natures of kinds of matter which form the special subject of that chemical science which shows us that in our earth alone are forty or fifty kinds of matter essentially different, and that out of these forty or fifty are made hundreds of other kinds of matter simply by combining these elements with each other in certain definite proportions.

From this short statement it will easily be seen that chemistry is one of those sciences to the teaching of which it is not easy to set definite bounds. To say that one teacher or ten teachers of chemistry would be sufficient for a university is extremely difficult; it is certain that a few teachers of chemistry would find ample work in teaching and guiding one hundred energetic students, determine in three years the chemistry of our material world. But the least number we could assign would be professorships for the two great divisions of chemical analysis, chemical synthesis; or we might assign two—one to organic and one to inorganic chemistry. For the present we will content ourselves with three—one for inorganic chemistry, one for quantitative analysis, and one for organic chemistry.

leaving them to add as many assistants as the convenient subdivisions of their subject require. The science of general physics is therefore a subject for one chair, in which possibly might be also introduced chemical physics, containing principles and matters common to both. Next, two professorships; one of the department of mechanics, or natural philosophy, as it is sometimes called, and another for general or inorganic chemistry. And next for the divisions of properties of matter and laws of force, professors of special physics and dynamics, and in chemistry professors of analytical chemistry and organic chemistry; in all, seven chairs.

MISUSE OF THE WORD "AND."

“AND” is a conjunction, whose office is explained in the etymology of the word “conjunction,” *i. e.*, to join together. Says Webster, “it signifies that a word or part of a sentence is to be added to what preceeds.”

The period indicates a completion, and is used to separate that which preceeds from what follows. It is properly called a full stop.

Then, it is evidently improper, inconsistent, and contradictory to commence a sentence after a period with the conjunction *and*. The one tells us to divide, the other tells us to unite, and both at the same time.

Yet many of our best scholars and most elegant writers frequently violate these most simple and obvious rules of grammar and punctuation. Not long ago, the leading article in the most learned and critical Quarterly in our country was completely spoiled—as to the pleasure of reading it—by this constantly recurring blemish. Probably every two periods out of three are followed by “and.” That delightful book recently published, Rev. Dr. March’s “Night Scenes of the Bible,” is greatly marred by this same inconsistency, and it is the only fault in the pure and classic English of that scholarly writer.

Presidents of colleges, professors, and editors are guilty of this breach of good scholarship. It is probably owing to carelessness, which is growing into a bad habit. This is inexcusable in any man with only a common school education in English grammar, and much more so in literary men and finished scholars.

The object of this communication is to call the attention of teachers to this growing absurdity, that it may be corrected in the education of the rising generation which is now in their hands.

M. BARRETT.

SCIENCE FOR CHILDREN.

THE schoolmasters of the present day may be divided into two categories: those who *teach*, and those who *hear lessons*; the latter class, unfortunately for the next generation, being by far the more numerous. The mischief done to the community generally by the short-comings of inefficient teachers is too well known to every one who has pierced below the surface of the great question of middle-class education. The difficulties, however, that best a science teacher in his endeavors to force scientific truths into the unwilling and unprepared minds of boys, who have been subjected to the sway of these same lesson-hearers, can only be realized by those who have gone through the task. The case of a senior science class, which has been under my charge for some months past, will illustrate my meaning most fully. It consists of about a dozen boys, whose ages range between fourteen and seventeen years, and they receive twice a week an hour's instruction on chemistry and physics. The class may be divided into two distinct portions by a perfectly sharp line. Four of the boys have had the advantage of six or seven years' training under the principal of the school, who is not only a ripe scholar, but also an efficient teacher—a very rare collocation in these days. The rest have simply learnt lessons all their lives. The four boys who have been *taught* are as mentally

distinct from the others, as if they were different species of **the** same genus. The first four are bright, attentive, wide-**awake**—I know of no other term to express exactly what I **mean**—logical, and clear-headed; they can fairly follow a **chain** of scientific reasoning, and reproduce it afterwards **link** by link; they have a certain power of induction and **deduction**, although of course, being new to science, this power is necessarily only just awakened; they can connect and correlate facts and ideas, they can enumerate a series of phenomena in logical sequence; in a word, although their industry and application are far from colossal, the task of teaching them the truths of natural science is a comparatively easy one. The other boys, as I have said before, almost form a distinct mental species. They cannot understand the possibility of learning anything without the aid of a book, and the idea of finding out anything for themselves has never entered their heads. Still they are far from stupid boys, being all possessed of good average brains; yet their faculties have not merely been allowed to remain undeveloped, but they have been utterly entangled, stunted, and stultified by what Dr. Frankland would call their “previous school contamination.” These boys, it must be understood, are the sons of parents belonging to the upper stratum of the middle class, and have mostly been to schools conducted by university men with honorable initials appended to their names—men, in fact, who are scholars but emphatically no teachers. Their great fault is a total want of mental method, without which the greatest brain is as nought. They are at home in Virgil and Horace, some of them are fair Greek scholars; they have “been through” Euclid, and can work moderately difficult algebraical problems in a certain mechanical fashion; they are well acquainted with the leading facts of English history, and know the exact position and population of Adrianople; but as far as real mental power goes, any poor boy, who has been in a National school for three years, would beat them hollow.

These facts surely point out the absolute necessity of beginning scientific training at a very early age; and I fancy this necessity has not been sufficiently dwelt upon in the numberless essays, letters, lectures, and evidence on the

subject of scientific education with which we have been deluged during the past decade. There seems to have been a notion abroad, that scientific teaching should not be begun before the age of twelve or fourteen ; but why, I would ask, should boys' minds be allowed to remain fallow during all these years? The minds of boys of seven and eight should surely be as carefully developed as those of their seniors, and there is certainly no means of pure mental culture so successful as scientific teaching. A boy of this age should not be taught science so much for the sake of acquiring a certain number of facts, as of developing his powers of observation and reasoning, and giving a proper tone to his mental faculties. A boy of eight or nine takes a morning canter of three or four miles on his pony, not for the purpose of getting over some seven thousand yards of ground, but to strengthen his muscles and improve his carriage : his science lesson should be an intellectual canter, taken with the view to strengthening and improving his mental muscles and carriage.

It may be urged that children of eight or nine are too young for systematic science teaching, but facts prove the contrary. An ordinarily intelligent boy or girl of this age is perfectly capable of understanding the broad differences between the animal, vegetable, and mineral kingdoms ; that there are more gases than one in the world ; that some of them are colorless, while others are brown or green ; that some burn and others do not ; that some plants grow from the inside, while others grow from the outside ; that some animals have jointed backbones, that others have their bones outside their bodies, while others have none at all. Facts such as these are perfectly comprehensible to children even younger than those I have named. During the first two years of a child's school life, after he has learned to read and write, he should be carried through the whole range of physical science in a systematic manner. The fundamental truths of chemistry and physics should be first taught him : all theoretical considerations being left aside. As few definitions as possible should be given, the whole task of the teacher at the commencement being to cultivate the child's powers of observation to the utmost. Gradually the powers

of induction and deduction may be developed, facts and phenomena should be compared, and conclusions drawn from them. Order in thought and description should be specially insisted upon, and occasional retracings of the ground already gone over should take place. The objects of this preliminary science-teaching should be two-fold: first and foremost, to train the mind and form the judgment; and secondly, to give the child a general idea of the object and scope of the natural sciences. At the age mentioned, the faculties are all fresh, and in full process of development; and such is the desire to exercise them in intelligent children, that their thoughts often run wild. There is nothing a child likes so much as investigation, or "finding out all about things," as he himself would phrase it. The boy in the nursery rhyme who cut the bellows open to see where the wind came from, is a type of his class. Unfortunately at the present time, scientific teachers for children are extremely rare, but let the want once arise, and the demand will soon be met. We have plenty of scientific teachers and lecturers for boys and men, but the child has hitherto been left out of consideration. Teachers, in the true sense of the word, are every day on the increase, and even the old-fashioned schoolmasters are beginning to see very plainly that they must alter their system of instruction, and yield to the pressure of the times. But it is not only upon these that I would urge the necessity of beginning science-teaching at the earliest possible period, but also upon those who have already adopted science as part of the ordinary school curriculum for the older boys.—*Chas. W. Quin, in "Nature."*

A GOOD EXAMPLE.

A HESSIAN Schoolmaster has set an example worthy of imitation. It was the general complaint in his village that the boys were continually guilty of cruelty to animals, of taking away birds' eggs, and destroying their nests. The teacher, grieved at such conduct among his own scholars, determined to form among them a Society for the Protection of Animals and the Preservation of Plants. The

children were delighted when their instructor communicated to them his idea, and with the greatest willingness took upon themselves the duties imposed by the rules of the society. During the past year the children caught many thousands of injurious insects, destroyed innumerable caterpillar nests, and collected and killed May chafers by the bushel. They are taught, however, to protect the useful animals, and to preserve the birds and their nests most zealously. Last winter the children took upon themselves the duty of strewing food in frosty weather to their little winged friends. The communal authorities of the place planted a number of young fruit trees last summer, and these are now placed under the special care and oversight of the school youth. The teacher has apportioned to each boy a certain number of trees, and the children are said to have become very much attached to the charge placed upon them. No rewards are offered to the children; they feel perfectly satisfied in being able to be of service, and to work for the general good.

EDUCATIONAL INTELLIGENCE.

NEW YORK.—The report of our City Superintendent for the year ending December 31st, 1869, gives as the number of pupils taught 237,325, and the average attendance 102,970. The enrolment (*a*) and the average attendance (*b*) were distributed among the different grades of schools as follows: Boys' grammar schools, *a* 31,745, *b* 16,803; girls' grammar schools, *a* 28,476, *b* 13,657; primary departments, *a* 90,722, *b* 38,441; primary schools, *a* 45,153, *b* 17,261; colored schools, *a* 1,990, *b* 795; evening schools, *a* 19,537, *b* 8,569; corporate schools, *a* 18,752, *b* 6,900; normal schools, *a* 950, *b* 544. Further statistics of attendance is given only for the primary schools and departments and the evening schools. Of the former, there were under the control of the Board of Education 110, including six primary schools for colored children. In these schools there were in December

last 1,068 classes, numbering in all 65,450 pupils, and giving employment to 1,248 teachers. The sizes of the classes ranged from 25 to 200 pupils. The largest number of pupils registered in a single school was 1667, and the largest number of teachers employed in any school was 27. The pupils are divided into six grades. The lowest (6th) grade numbered 16,340 pupils, the highest 7,625. In some of the schools more than one-third of the pupils were in the lowest grade. "The great numbers in classes of the lowest grade is partly owing to the fact that in some localities a large portion of the children leave school before they are able to enter the higher grades of the primary course; but among other prominent causes, may be mentioned the inefficient character of the instruction given, and the very large number of pupils assigned to a single teacher in this grade. These last evils appear to be chronic, and cannot be removed without more school accommodations for the classes of the lower grades, and some change in the practice of placing the teachers of the least experience to perform the most difficult work in the school."—(*Pages 74-75.*) The foregoing would appear to show that the school sittings provided by the City are not properly distributed among the several classes of schools, or else that there was a great mistake in the report of a special committee last September, which claimed that the public schools of the City had "an excess of seats over the average attendance of about 40,000." The aggregate expenditure for school purposes was nearly three million dollars.

OHIO.—In advance of the publication of the annual report of the State Commissioner, the *Ohio Educational Monthly* gives that officer's summary of statistics for 1869, with the corresponding figures for 1868. These show that, with 1,028,877 children and youth between 5 and 21 years of age, the State gave more or less instruction to 740,382,—that number being enrolled in the public schools as follows: In common schools, 711,652; in high schools, 12,146; in German schools, 5,467; in colored schools, 4,748. The enrollment was 72 per cent. of the school population; the average daily attendance was 42 per cent. of the same, for a period

of twenty-six weeks in the sub-district schools, and about thirty-three weeks and a half in the graded schools. The whole number of schools was 11,714; common, 10,962; high, 198; German, 55; colored, 204. These schools were held in 11,714 school-houses, which, with their sites, were valued at nearly twelve and a half million dollars. The number of different teachers employed was 21,626, the number necessary to supply the schools being 14,182. Of the first 9,721 were men, and 12,455 were women. The average monthly wages of male teachers in sub-district schools was \$38 08; the female teachers received \$24 29. The amount paid to teachers for the year was \$3,671,905, the grand total of school expenditures being \$6,630,793. The receipts from local taxation show a gain of \$708,625, while the miscellaneous receipts declined so as to reduce the aggregate gain to \$658,273. The increase in the local tax has been over one hundred per cent. since 1866. The expenditures have been nearly doubled in the same time, the greater part of the increase being in the amount expended in the erection of school-houses. In this item the gain has been nearly three hundred per cent. But a small part of the increase in expenditure falls to the teachers, their gain being less than thirty per cent. of their wages for 1866. The statistics of teachers' wages for the past year are somewhat contradictory. The total of teachers' wages shows an increase of \$284,004, while the average monthly wages were less than for the previous year. This discrepancy puzzles the Editor of the *Monthly*, "as it is not due to an increase in the time schools were in session, nor to the small increase in teachers." Mr. White also calls attention to a blunder frequently made in estimating the number of children in any State that are growing up unschooled. He says: "A comparison of the enumeration and enrollment shows that about 72 per cent. of the youth of school age attended the public schools some portion of the school year, leaving 28 per cent., or 288,495 youth, not enrolled. But we must not infer that these non-enrolled youth in 1869 are growing up in ignorance, without schooling—a very common blunder, and one which has been made in the school reports of several States. At the session of the Pennsylvania Teachers' Association in August last, it

was stated in a report on Absenteeism and Compulsory Education, that there are 135,000 youth in Ohio whose education is 'totally neglected.' We took occasion to correct the statement as unjust to our State, but were met with the remark that it was taken from the official school reports of Ohio—the number of youth of school age not enrolled in public schools being say 220,000, of which not more than 85,000 attend Catholic and other private schools, leaving 135,000 not in school. It was not difficult to show that the fact that there were 135,000 youth of school age out of school in a given year, is no evidence that their education is totally neglected. The school-going period in Ohio is largely between six and seventeen years of age, while the enumeration includes all unmarried youth between five and twenty-one. If every child in Ohio should attend school regularly ten months a year from the age of six to seventeen, there would still be more than 200,000 youth of school age not enrolled in school in any one year. Take, for illustration, a family of eight children, one being between five and six years of age, five between six and seventeen, and two between seventeen and twenty-one. The returns may show that but five of these children are attending school, but does it follow that the other three are growing up in ignorance? The eldest two may be graduates of the high school, and each of the other children may in due time receive a like good education. The truth is, that the difference between the enumeration and school enrollment proves nothing respecting the number of youth growing up unschooled."

MICHIGAN.—The Regents of the University of Michigan recently resolved to recognize the right of every resident of Michigan to the enjoyment of the privileges afforded by the University, no rule existing in any of the University statutes for excluding from the University any person who possesses the requisite literary and moral qualifications. This opening of the doors to lady students will not necessitate any material change in the conduct of the institution. The minimum age of admission has been changed from 14 to 16. The University now numbers something over a thousand students, about four hundred being in the department of Science, Literature and the Arts.

WISCONSIN.—According to the State Superintendent's report for 1869, Wisconsin is divided into 4,735 school districts, 4,651 of which made returns of school statistics. The number of children and youth between four and twenty-one years of age thus reported was 398,747, an increase for the year of 12,117. The number of children of school age in districts maintaining school five months or more was 394,837, over 20,000 more than were reported last year. The number of different pupils enrolled in the schools during the year was 264,033, of whom 698 were under and 1,540 were over school age. The average length of time schools were maintained was 151 days, about 10 days more than the term for 1868. The total number of days' attendance of different pupils during the year was 19,139,941, over half a million more than last year. Besides this attendance at the public schools, there were nearly 20,000 pupils reported as attending private schools, academies, colleges, etc., for a longer or shorter period. The unreported pupils, the Superintendent thinks, would swell the number of school-goers to about 290,000, leaving over a hundred thousand persons of school age who received no school instruction during the year. The number of school houses provided by the State was 4,742, with accommodation for 274,022 pupils, or ten thousand more than were enrolled. The number of teachers required to supply the schools was 5,517; the number of different teachers employed during some portion of the year was 8,775. The wages of these teachers amounted to \$1,193,985, averaging \$43 63 a month to male teachers, and \$28 34 to female teachers. The total expenditure for school purposes was \$1,987,436, or \$7 52 for each pupil registered. The Superintendent discusses the text-book question, favoring State uniformity.

KANSAS.—Out of 1,707 school districts in this State, 1,621 furnished statistics for the State Superintendent's report for the year 1869. The legal school population includes all between the ages of five and twenty-one, and numbers 92,517, an increase for the year of 11,367. Of these 58,681 were enrolled last year in the public schools, an increase of 13,541; while 2,784 others were enrolled in other institu-

tions of learning. The average daily attendance at public schools was 31,124, an increase of 3,886. This small increase in average attendance does not speak well for the management of the schools. It should have been four times as great. The schools were in session an average period of five months. The number of teachers employed was 2,014—males, 896; females, 1,118; a total increase of 413. The average wages of teachers were—to men, \$37 07 a month; to women, \$28 98. These figures show a decrease of \$2 49 in the wages of male teachers, and 12 cents in the wages of female teachers. Whether this decrease in teachers' salaries had any influence in determining the low rate of increase in average attendance, there is no means of telling. The total amount paid for teachers' wages was \$292,711, an increase of \$88,844. The amount raised by direct tax for the support of public schools was \$428,984, the aggregate resources of the schools having been \$565,311. The number of school-houses in the State was 1,213—log, 348; frame, 606; brick, 35; stone, 224. The increase for the year was 260. The value of the school-houses was \$1,031,892; of apparatus, \$17,118.

TURKEY.—The Porte has recently issued a law on public instruction containing the following provisions: The public schools of the empire are to be of five classes—primary, superior primary, and preparatory schools, lyceums, and special schools. Each quarter in a city and village must maintain a primary school for Mahommedans, another for non-Mussulmans. Children are to receive instruction in the religious book of their persuasion, attendance being compulsory during four years, from the age of six to ten for girls, or of eleven for boys, save in certain specified instances. A superior primary school, or two if necessitated by religious differences, is to be instituted, at the charge of the vilayet, in every town of five hundred houses. The course in these will likewise extend over four years, and will include Turkish, Persian, and Arabic grammar, arithmetic, book-keeping, geography, history, geometry, and one local language. Boys and girls are not to receive instruction together. The highest class of educational establishments

includes a normal school; the upper schools of arts and sciences; and the University of Constantinople. The university is intended to contain three faculties—for letters, law, and physical science. For the present, however, its curriculum embraces merely Turkish literature, arithmetic, elementary geometry, and the rudiments of law. There will be instituted at the capital a Council of Education, and an Academic Council in each chief city of a vilayet.

CURRENT PUBLICATIONS.

TAKING "The American Women's Home" as a basis, the authors of that work have prepared another for use as a text-book¹ in Young Ladies' Schools. It is intended to give to girls such instruction as may fit them for the "duties, cares and pleasures of the family"—the family being, in the authors' opinion, the place where, whatever may be the political development of the future, Woman will find her most engrossing occupation. The authors believe that the chief cause of the disabilities and sufferings of women is the fact that the honor and duties of the family state are not duly appreciated, that women are not trained for these duties as men are trained for their trades and professions, and that as a consequence, family labor is poorly done, poorly paid, and regarded as menial and disgraceful; and hope by their book to "elevate both the honor and the remuneration of all the employments that sustain the many difficult and sacred duties of the family state, and thus to render each department of women's true profession as much desired and respected as are the most honored professions of men." The book contains some thirty chapters ranging over the whole field of domestic economy, with a supplementary chapter containing an address of the senior author to the female teachers of the country, in which is sketched a plan for an industrial school of high grade for women.

¹ *PRINCIPLES OF DOMESTIC SCIENCE.* By Catherine E. Beecher and Harriet Beecher Stowe. New York: J. B. Ford & Co.

MESSRS. SHELDON & Co., have added to their list of school books a useful series on English and American Literature; comprising Shaw's well known Manual,¹ with Dr. Smith's notes and illustrations, to which has been added a sketch of American Literature, by Henry T. Tuckerman; Choice Specimens² of English Literature, selected by Drs. Shaw and Smith, and somewhat altered and amended by Dr. Martin, of the University of this city; and a smaller History of English and American Literature,³ an abridgement of the first named. The second is soon to be supplimented by a volume of Specimens of American Literature, selected and edited by Dr. Martin. The high value of this series, as an introduction to the literature of our mother tongue, should secure for it a wide use in our schools. Indeed we should confidently bespeak popularity for it, if modern literature were awarded its due proportion of time in our school studies, and if the publishers' desire to crowd a large amount of matter into small space had not prompted them to use smaller type than is appropriate for school books. The Manual is particularly hard to read from this cause, and the evil is not a little aggravated by imperfect printing. The volume of specimens being better printed on whiter paper is typographically more commendable.

IN his "Health by Good Living,"⁴ Dr. Hall essays to show how high health can be maintained and common diseases cured by "good living," which according to his definition means eating with a relish the best food prepared in the best manner, and to show how the all-important relish can be secured. The implied thesis, that proper diet will ensure good health, will be pronounced extravagant by most people, though few readers will refuse to admit that there is much profitable advice mixed with his arguments to maintain it. The book seems calculated to do much good to a large class who would be frightened at a more pretentious work.

¹ SHAW'S COMPLETE MANUAL OF ENGLISH LITERATURE, 12mo., cl., pp. 540. \$2 00.

² CHOICE SPECIMENS OF ENGLISH LITERATURE, 12mo., cl., pp. 477. \$2 00.

³ SHAW'S SMALLER HISTORY OF ENGLISH AND AMERICAN LITERATURE, 16mo., cl., pp. 268.—\$1 25.

⁴ HEALTH BY GOOD LIVING. By W. W. Hall, M.D. New York: Hurd & Houghton. 12mo. cloth.

PROF. EVANS'S DEFENSE.

THE readers of the MONTHLY have seen in the March number Prof. Evans's reply to Prof. Fischer's review of his *Abriss der deutschen Literaturgeschichte*. Besides this reply, there have been published by Prof. Evans, or in his interest, a number of articles in certain other periodicals, in which not only is the charge of plagiarism flatly denied, but a counter-charge of malicious accusation, even forging the documents from which quotation was made, is raised against Prof. Fischer. Since this charge of forgery has been made repeatedly, and since in some cases it has been asserted that Prof. Evans never heard the lectures which Prof. Fischer has charged him with unduly using, we are compelled to lay before the public the whole history of the matter.

Prof. Evans's book was sent by his publishers to the editor of the *Magazine*, and by him was referred to Prof. Fischer for review. . . . examination of the work created in Prof. Fischer's mind a lively suspicion that it was in the main a series of German University lectures, some evidence pointing to Göttingen as its place of origin. To settle this point, inquiry was made of the well-known publishing house of *Vandenhoeck and Ruprecht*, one of the largest and oldest German publishing firms. The present representative of the firm is Mr. C. Ruprecht, is a highly-educated scholar, an eminent bibliographer, distinguished alike for his personal integrity and his social position. In reply to the inquiry whether Prof. Evans's book (a copy of which was transmitted for examination) was not a transcript of Göttingen lectures, Mr. Ruprecht, under date of October 19, 1881, replied to Prof. Fischer as follows, the letter being literally translated into English :

"Immediately after reading Mr. Evans's book, I was sure that the author had made a great use of the lectures of our literary historian Prof. W. Müller, whose lectures I myself have heard in former years. Prof. Müller, to whom I brought the book, confirmed my opinion in every respect ; and said, after a minute examination, that Mr. Evans had greatly used his lectures (*seine Vorlesungen stark benutzt habe*), though in consequence of erroneous understanding (*in Folge einer richtiger Auffassung*) had often produced the direct contrary of what he himself had said, for instance in the passages concerning Göttingen. The enclosed volume (that of Mr. Wiemann) offers material enough for a charge of plagiarism against Mr. Evans, although it has not been written very completely (*ist leider nicht sehr vollständig nachgeschrieben*). It was important to obtain the lecture-notes (*ein Copienheft*) of that half-year in which Mr. Evans had heard Prof. Müller's lecture. For this purpose, I wrote to the birth-places of the hearers who, according to Prof. Müller's statement, had heard, together with Evans, his lectures. There were four of them, besides I

Evans, but not a single one could be immediately found, and only after some time one of them wrote me that he had not taken any notes at all. Another stated that all his lecture-notes, without exception, had been lost. A third said that he had taken his notes very irregularly, and could not produce them; and, finally, I received the enclosed (Mr. Wiemann's) notes, which I have laid before Prof. Müller, and caused to be acknowledged and certified by him."

The title of Mr. Wiemann's volume is as follows :

Geschichte der Deutschen National Literatur Vorgetragen, Von Prof. W. MÜLLER. Michaelis, 1859, bis Ostern, 1860, G.A. (1) A. Wiemann, Stud. Phil. and Theol.

(Translation of the certificate on the title page.)

"These notes are written according to my lectures on the 'History of German National Literature,' delivered in the winter 1859-60.

(Signed)

" WILHELM MÜLLER, Dr.,

" Professor.

"Göttingen, August 16, 1869."

"The authenticity of the signature of Prof. Dr. Wilhelm Müller certify hereby

(Signed)

" VANDENHOECK AND RUPRECHT,

" Academic Publishers.

"Göttingen, August 18, 1869."

The foregoing documents have been submitted to the well-known publisher and importer of books, Mr. L. W. Schmidt, 24 Barclay St., N. Y., who is familiar with Mr. Ruprecht's writing from long correspondence with him. Mr. Schmidt pronounces both the letter and the certificate quoted above to be in Mr. Ruprecht's writing. He has also compared the passages from Mr. Wiemann's notes, printed in the MONTHLY for January, with the notes themselves, and testifies that they agree word by word. The volume of Mr. Wiemann and the letters and certificates may be seen at this office by any one desirous of inspecting them. So much for the charge of fabricating proofs.

Prof. Evans further alleges in his defense, that the passages—the authenticity of which he has denied—are after all no proof of plagiarism. To sustain this position, he quotes what he calls parallel passages from other authors, whose integrity is not to be questioned; and claims that if he is guilty of plagiarism, all the distinguished authors he quotes from are obnoxious to the same charge. But he overlooks the fact that Prof. Fischer gives not detached sentences, but a connected passage of more than a page, commencing with the

¹ Georgia Augusta—that is, Göttingen University.

very beginning of the book. Plagiarism does not consist in an occasional using of thoughts that other authors have advanced. What does this lack not honesty so much as originality. But a writer who through a whole subject follows sentence by sentence the lead and uses in large measure the very words, of another, betrays not merely poverty of thought, but poverty of moral sense as well. And this is demonstrably Prof. Evans's case, as may be seen from the following review of the controversy in *The Nation* of February 24th.

"No one could have been more gratified than ourselves if the recent controversy between Prof. E. P. Evans and Prof. Gustavus Fischer had resulted favorable to the former. We had a direct interest in the matter, owing to the praise bestowed by the *Nation* on the 'Abriß der Deutschen Literaturgeschichte,' which has been under dissection and we should have been glad if the literary judgment which we adopted, from our faith in Prof. Evans's character, as well as in his attainments, had been, if not confirmed, at least not seriously impaired. However, both parties have now been heard, and more than once, and it is possible to decide between them without injustice. The papers which have already attempted to do so have shown either a theological bias, on the one hand, or a 'Know Nothing' bias on the other. It is needless to say that we sympathize with neither, but propose making an unprejudiced presentation of the facts in the case. As we write, the whole of what has been published on both sides, by the author and his critic, is to be found in the *American Education Monthly* for January, February, and March, and the *Chronicle* (of the University of Michigan) for January 29 and February 12. Prof. Fischer's charges are of three kinds: (a) that the *Abriss* is not what (negatively) purports to be, original; (b) that it is mainly made up of notes taken at a series of private lectures by Prof. Wm. Müller, of the University of Göttingen, in 1859-60; (c) that it is so full of errors, misapprehensions, omissions, and confusion, as to be worse than worthless to students or scholars. To this Prof. Evans replies in general, that (a, b) he had prepared a preface which was not printed with the first edition (for use in his own classes), acknowledging his indebtedness to a great many German professors, Müller included, whose lectures he attended; that he did not use his notes of any of these lectures in preparing his *Abriss*, but that they were inextricably mingled in his mind with ideas derived from authors, to be named in the preface, whose works he had read, making notes which he did use; that he heard a portion only of Prof. Müller's lectures, and in 1858-59 (not 1859-60); that his notes on these covered scarcely three sheets of paper, and to them he owed only "a few hints as to the general division of the subject into periods;" finally (c), that "competent critics, both in America and Europe, have pronounced a very different judgment" on the *Abriss* from that pronounced by Prof.

Fischer. The latter's proofs of plagiarism consist in, (1) the style of the *Abriss*, which he recognized as unmistakably that of the German professor; (2) correspondence (in detail, for about sixty pages in scheme of outline, throughout) with notes made at the same lectures by a Mr. Wiemann, procured by Prof. Fischer, and endorsed as genuine by Prof. Müller; (3) discrepancies due to misunderstanding the lecturer; (4) disproportion in treatment of periods and authors, incongruous and incoherent judgment and descriptions, and errors of a soft incompatible with originality or research. On the second point, Prof. Fischer's exact words are: "In the arrangement of the periods and their subdivisions, and in the scheme of the whole; there is a complete identity" between the two sets of notes. Prof. Evans replies: (1) Naturally he has caught the professor's style; (2) he doubts the existence of Mr. Wiemann. To (3) and (4) he replies not in general terms—for they were not formulated as we have put them—but according to the several instances alleged by his critic. Prof. Fischer begins his citations of parallelism at page 9 of the *Abriss*, and places eleven (with one gap not indicated) consecutive paragraphs, making nearly the whole of page 10, against Wiemann's notes as they run; in each instance *the German text only*. Prof. Evans appears, from this comparison, to have made one omission, two insertions, a few insignificant and some very significant alterations, but on the whole to have followed Müller, *pari passu*, in thought and *order of thought*. To clear himself of this imputation, he asserts that he has merely used what are now axioms in the history of literature, and explains on this ground the likeness of seven of the ten agreeing paragraphs, citing both his own and Wiemann's, and then from well-known authorities passages embodying the same ideas; but, "out of tender regard for the infirmities of the general reader," rendering all the quotations *into English*. To be sure, he gives occasionally the German word in parenthesis, but this only when it makes for his side, and sometimes with the effect of diverting the reader from the point of resemblance. And he neglects entirely to account for the order of ideas in each paragraph (which does not always reappear in his confirmatory citations), and for the order of the paragraphs themselves within the compass of a single page. That Prof. Fischer might have produced similar parallelisms in the subsequent pages as far as p. 60, when Wiemann's notes ceased to be full, is rendered probable (besides his word for it) by extracts from pp. 11-40, showing important misconceptions of, as well as continued agreements with, Müller's remarks as reported by Wiemann. When they contain an error of fact, Prof. Evans generally replies with an emendation; when they involve nice shades of meaning—the *nuances* which are the test of proficiency in a language not one's own—he is silent. But emendations and silence alike fail to account for such a composition as the paragraph which analyzes "Faust," or that other on "Thiersagen," in Prof. Fischer's

second article, which we have not space to allude to further. We have verified all his citations from Prof. Evans, and have even detected in them an error favorable to the latter, and we conclude the *Abriss* to be wanting in originality, and to be more the echo of Prof. Müller than of any authority within our knowledge, though probably picked up from other sources—from one of which, Weber's "History of German Literature," Prof. Evans is taxed with having "almost literally copied" his review of Latin poems of the ancient period. While we are disposed to allow him the full benefit of his intended preface, as if it had been printed, we cannot think that it gives a fair account of the nature of his book."

The futility and disingenuousness of Prof. Evans's replies need no longer dwelt upon. Still if he or his friends are not satisfied with the evidence of his guilt already given, Prof. Fischer will continue the comparison of the *Abriss* with the notes of Mr. Wiemann, beginning where he left off in January. He will then go on to trace their sources the portions of this patchwork volume that were taken from Prof. Müller's lectures.

But one more point in Prof. Evans's replies requires notice at hand, and that is his slanderous mention of the MONTHLY, in his communication to the *Detroit Post*, as "a journal that affords Mr. Evans every facility for continuing his attacks, but has no place for a review except at advertising rates."

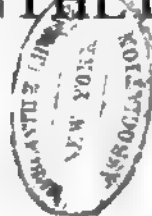
For this insult, Prof. Evans, under date of February 17th, makes the following clumsy apology :

MR. EDITOR :—I have just received the March No. of your MONTHLY containing my communication in reply to Mr. Fischer, and I am much obliged to you for its insertion. As my article did not appear in the February No. of your MONTHLY, and as no allusion was made to it, I was led to believe that you did not intend to publish it at all. My belief was strengthened by a statement coming from a gentleman residing in New York, that you would probably not print it "Except at advertising rates." A few days ago, I received a letter from Mr. Holt (of the firm of Leypoldt & Holt), taking upon himself the blame for this misunderstanding, because he neglected to inform me that he intended to publish my communication in the March number of your Magazine.

We need only remark that the reckless disregard of truth, which induced Prof. Evans to make a positive statement of so serious a charge on the flimsy foundation of some unnamed gentleman's insinuation of *probability*, may help to account for his free use of other people's property, without troubling himself to make any sort of acknowledgment.

AMERICAN EDUCATIONAL MONTHLY.

MAY, 1870.



AGASSIZ IN NEUFCHATEL.—HUMBOLDT AND THE FRENCH ACADEMY.

SECOND PART.

DUJARDIN was Valenciennes' competitor for the zoological chair in the Academy. The scientific qualifications of the two did not admit of comparison. Dujardin was a scholar of original research and clear observation; he was at home in all departments of science, and a microscopist of the first order. But he was said to be a quarrelsome character, squabbling with almost every one. The friends of Valenciennes could claim nothing for him but that Cuvier had entrusted him with the publication of a great work on fishes. But he was a good fellow, who had never had any dispute with Dumas, though living in the same house with him. Moreover, he was already a professor in the Jardin des Plantes. Thus the Brogniartists supported him with all their influence. Humboldt's name now began to be in the mouths of all. Valenciennes was daily carrying about piles of letters. In the Jardin, in the Sorbonne, in the College of France, in the Institute, they were asking no more, "*How do you do?*" but "*Did you get a letter from Humboldt?*" A. de Jussieu had been in the habit of answering, "*Bien, et vous?*" before the question.

"*Comment vous portez vous ?*" had even been asked. He now changed his course. When passing his friends he raised his hat, and recognized them with "*Moi aussi*," in answer to a presupposed remark concerning a letter from Humboldt. Of course, Humboldt himself was frequently criticized, and we confess not in a very flattering manner, either by friend or foe.

"Our stock is low, I suppose," said one of the Valenciennes men to another, in my presence. "I am sorry indeed," answered the other; "but if the old intriguer of Berlin takes the matter into his hands, we shall carry our man after all." "Do you believe so?" "I do; he has clues and threads of which you cannot easily form an idea, and, in case of necessity, will move heaven and earth till he has succeeded."

One day I remarked to Lemer cier that Humboldt's arrival, for securing Valenciennes' election, was daily expected; and told him of my eagerness to make Humboldt's acquaintance. "Then," said he, "you will make the acquaintance of the most mischievous tongue in France and Navarre." "Do you lower your flag so easily, *cher ami*?" I asked, laughing. "Before him, ten times," was Lemer cier's answer, while he was squinting over his eye-glasses. "He has studied the poison-snakes in South America, and profited by the study. Compared with him, we both are mere babes, full of innocence, virtue, and—naïvete!"

Valenciennes' stock was low, indeed. Arago stood firm. The Observatory and the Jardin des Plantes were in open war. The Sorbonne, the College of France, the Polytechnic, and the School of Mines were wavering—sometimes inclining a little to the one side, sometimes towards the other. At this juncture a prospect of a peaceful settlement opened by a new vacancy in one of the mathematical sections; but Arago as well as Brogniart again favored opposite candidates, and the struggle waxed so warm that in secret session the members all but flung their chairs at each other's heads, which flinging, in the public meetings, was metaphorically applied to words. It was high time that Humboldt should come. He indeed cut loose from Berlin and in January, 1845, made his appearance in Paris. In

couple of days he had spun his spider-web, and caught therein all academic flies.

"What do you astronomers, mathematicians, and physicists care," he said to Arago's party, "whether one ass more or less will sit among the zoologists? Anyhow, *you* do not know anything about it. Will you not do me the personal favor (strongly emphasizing the word *personal*) to give your vote to Valenciennes, provided I get you the votes of the Brogniart men for *your* candidate?" Similar propositions he made to Brogniart and his party, and the consequence was the election of Valenciennes, showing that the old French proverb, "*Passe moi la rhubarbe, je te passerai le séné,*" was still eminently practical.

To see Humboldt during the campaign was out of the question; but immediately after the election I inquired for the best method of being introduced to him. My friends would then ask me if I was not engaged in some new investigation, and if I had not found out something that nobody had yet seen. "Why?" I asked. "Because," they replied, "in that case, you need but tell Valenciennes of it, and you will see Humboldt call on you to-morrow morning in person." "Pshaw!" "Most unquestionably he will come. In the morning, between eight and eleven, he has his *garret-hours*. Then he is creeping and crawling about in all corners of Paris; he climbs up to every garret in the *Quartier Latin*, where he suspects some young genius to roost, or some of those unfortunate scholars whom their own hobbies have ruined. All these he pumps completely dry. He knows to perfection how to utilize what he has pumped out in this way—sometimes in his books, but more frequently in his talk. He displays in the evening every item that he has learned in the morning." "I think (replied I) that you are too severe in your remarks. Humboldt will unquestionably acknowledge most scrupulously his sources, even of the most insignificant scrap of information." "That he certainly does; he is even thankful for what has been communicated to him, and if any of these garret-scholars should engage his interest, he frequently supports them—if not with money, at least with his influence. Many are thus owing him their positions." "Then

I see, indeed, nothing objectionable in all this, and I should most willingly make him acquainted with all my discoveries—if I had any to show.” “If you cannot get at him in this way, then try to see him in the Café Procope, near the Odeon. There he takes his lunch at eleven o’clock in the morning, in the left corner of the room, near the window. But no—that will not do. There he is always so completely besieged by a curious crowd that you will have no chance of approaching him. Why not address a letter to him? He will give you an interview in G. Mignet’s study in the Bibliothèque Richelieu. Since Mignet studies never, but Humboldt does very much, the former always places his study at Humboldt’s disposition, as long as the latter is in Paris. Here he has the advantage of both the library and the servants attached to it. But only academicians have access to him; all others must have special appointments.” “But I have only Agassiz’s compliments, and to intrude on Humboldt under such a pretext during his studying hour would be stealing his time.” “This is all very well, but there is often very little of study there. The whole room is frequently filled with members of all five academies, and they do not always speak of literature and art. There is often a good deal of gossip or scandal going on in the Academy. If you should interrupt such talk, you would be very much like the dog in the bowling-alley; and if nobody is present, you would be sure to interrupt his studies. There is no other expedient, then, but to catch him in the evening in some drawing-room. Where are you introduced?” I mentioned some houses. “Well, I shall make some inquiries; but, I tell you, even in such places you will not be able to speak long with him.” “Why not?” “Because he has no time. He is an indefatigable talker; if he is once at it, nobody else has a chance; but all listen most willingly, for he is sparkling, witty, and his delivery is beyond comparison.” “I believe you exaggerate a little.” “Not a bit. It is true he is as malicious as a monkey, and nobody is safe from his sarcasms; but no Frenchman has more *esprit* than he. In that they all agree; but let us see—are you not perhaps invited to some grand dinner-party?” “Not that I know.” “That is a pity! but hold. Does not

Brogniart receive Monday next?" "That is his day." "Are you introduced there?" "I am." "Well, then, the thing is done. I bet ten to one, Humboldt will dine at Brogniart's Monday next with the newly-elected academican; but you must go very early, for he does not stay long after dinner—half an hour at the utmost; after that he will leave." "Where does he go then?" "*O, sancta simplicitas*, innocent plant of Helvetian growth! Do you not know, then, you Arab of the glazier-desert, that Humboldt every night makes at least five different calls, producing on each occasion the same stories with variations? As soon as he has bowed to the lady of the house, he takes his seat near the fire-place. A reverential silence will set in. The lady of the house will invariably ask: Now, your Excellency (or M. de Humboldt, or Dear M. de Humboldt, or *Mon cher ami*, according to the degree of her acquaintance), what news do you bring with you? Then he will open the flood-gates of his eloquence. When he has spoken half an hour he rises, bows, takes one member or another to the window-niche to whisper something into his ear, and then withdraws with a noiseless step. Below his carriage is waiting to convey him to some other place, where the same scene is repeated, and so forth till he returns to his lodging after midnight. So you see, you must go early, if you wish to find him still at Brogniart's."

And early I *did* go: the ladies were scarcely installed in the drawing-room, with some faithful followers and a few early guests who had evidently come with the same expectation as myself. I saw only a single one of my acquaintances, Babinet, the physicist, and he was sleeping in a corner. That was *his* specialty. When he was in the Academy you would see him, immediately upon taking his seat, untie his enormous muffler (*cache-nez*), and then work with both hands his rich crop of hair till it was a complete matting. Having performed this operation, he would lean on both his elbows, and take a nap, sometimes snoring loudly. Trago said once on the stand: "Gentlemen, I should like to read this letter, unless Mr. Babinet . . ." At this moment Babinet received from his neighbor a reminder in his flank that might have brought a rhinoceros to the ground.

He started up with the cry, "What is the matter?" "You have no objection, I presume," said Arago, smiling. "No, no," replied Babinet. The whole Academy roared.

Babinet, then, was sleeping in a corner. From one of the adjoining rooms, which had been closed, a low voice was heard, and then a general laughter. After some time the door opened, and a stream of naturalists and academicians gushed forth. They had two little, white-haired men in their midst—Brogniart, one of the most elegant of figures, ever lively like mercury; and Humboldt, who was of a far more solid make, but in a stooping attitude. Before I had even finished bowing to all my acquaintances, Humboldt had passed to the fire-place, but not without having applied a familiar tap to Babinet's shoulder. The ring closed immediately. Humboldt spoke; I do not remember what—perhaps some news of the day, or so. Meanwhile, the room was fast filling with visitors. I manœuvred with some effort towards the door. When Humboldt was done with his stories he made a bow, and the company immediately made way for him. I posted myself right in his path. "Your Excellency," said I, "I have to bring you Agassiz's compliments." "What is your name, and where do you reside?" I handed him my card. "I shall be very happy to hear something of my friend. I will write to you. *Au revoir.*" Thus he passed out. The room was like a beehive. Babinet rose: "Is he gone?" said he. "*Toujours le même farceur.*"

When I came to the entrance, a servant handed me my card: "You have lost it, I believe; I found it on the floor."

The cable had snapped!

THE interior of the school should represent the interior of a happy home. Light and a pure atmosphere should fill it. Things of beauty and knowledge should cover the walls. The pupil should listen to gentle sounds and kind accents. The tidy school-room should be surrounded by a garden full of native flowers; and a clean, roomy playground should ever be deemed essential.

DISCIPLINE IN THE SCHOOL-ROOM.

II.—MEANS OF SECURING AND MAINTAINING IT.

IN a previous article we endeavored to set forth some of the more prominent embarrassments or sources of difficulty to the teacher in the maintenance of order in the school-room. Our present object is to suggest a few remedies or methods of securing and sustaining such a degree of control over the pupils' minds as shall subserve the proper ends of discipline without compromising either the teacher's dignity or the pupils' self-respect.

I. First and foremost, therefore, let it be laid down as a rule never to be violated by the teacher in the school-room, that he be always self-possessed and calm, though decided in the exercise of discipline. Never, under any circumstances, nor on any considerations, should a teacher allow himself to be thrown off his guard. However greatly he may be tried, he is not to give way to outbursts of passionate feeling. There are no exigencies—absolutely none—demanding it; though there are many in which the temptation is exceedingly strong. But if it be yielded to, disaster is sure to ensue, either to the teacher or to the school. To avoid any liability even to a momentary betrayal, or of the pupils' taking the advantage here, there should never be loud and rapid or blustering threats. They accomplish nothing, except to lower the teacher in the estimation of his pupils; whilst he who indulges in them loses immensely both in authority and in self-control.

The tap of Cæsar's finger was all that was needed to awe the Roman senate into silence. A word in a firm, commanding, but not vociferous tone, is all that is ever required to bring to order the jarring elements, if any there be, in a properly governed school.

A discriminating visitor needs to be in a school but a little while to discover whether there exist in it, in the ordinary routine, good or bad management. The very tone and manner of the teacher's address to the scholars tell in lan

guage unmistakable the degree of actual government existing there.

Pupils, too, soon gauge the teacher's calibre as a disciplinarian. They are exceeding adepts in discerning character. They read a teacher through and through long before he himself is aware of it. They will know their man, his temper, spirit, ability,—in a word, his whole mental and moral cast; and if they can draw him out for measurement in no other way, they will contrive temptations and lay traps purposely to try him, that they may understand with whom they have to deal.

Children are children the world over, yielding implicit confidence only where they discover a worthiness of it; but refusing trust and respect no less instinctively, where they discover weakness and inability in those claiming authority over them. Let them see the master or the parent (for the principle is the same both in the school and in the family, governed by no law but that of passion, and exercising no authority save that of arbitrary and capricious will, and it will not be long before the children under such control will exhibit the same spirit, perhaps in more vexatious and glaring development, because under less mature, less evenly balanced faculties. They expect their elders to know better how to act in emergencies than they themselves; and when they see them thrown off their guard by trifling and insufficient causes, and retaining self-possession merely by fits and starts, they lose the confidence previously reposed. They can hardly help it; nor should it be accounted strange if, in the exigency, they take their own course independent of the guiding mind in whom they sought but failed to find reliability. What they want is a teacher whose powers are ever at full and immediate command.

An excellent female missionary in India, being once appealed to by a friend for the best method of governing her children, replied:

“First learn to govern yourself, and you will have no difficulty in governing your children.”

She spoke a truth which ought to be nailed, in letters of gold, not only above the mantel of every family, but above the black-board of every school-room. He, and he alone,

will be a successful disciplinarian who possesses his mind in perfect control; whose judgment and reason sway the sceptre, and not his excitable passions. And until a teacher has learned this first of needful lessons fitting him to govern successfully his school, he is not prepared to carry out any system, however admirably adapted to secure the ends of discipline. He will only thwart his own aims, cloud the expectations of hopeful friends, and injure his influence, it may be permanently, both as a teacher and as a citizen.

If, therefore, we were called upon to state what we conceive to be the first qualification fitting a teacher to govern with dignity any school, we should unhesitatingly answer, perfect self-command. It is a quality in an instructor which cannot well be overestimated. It is absolutely indispensable to successful discipline. As its lack is subversive of all order, so its possession is the surest guarantee of governmental ability and the sway of commanding influence over other minds, whether in or out of the school-room.

II. There must be discrimination, no less than self-control, in the exercise of discipline.

As children are commonly shrewd readers of character, they need, in those who would govern them, at least an equal shrewdness in reading, and a greater discrimination in dealing with character. They need, in short, those who can adapt as well as apply their treatment to meet the peculiarities of disposition and capacity discoverable in the diversified traits developed in their pupils. Hence it will never do for the teacher to lay down a rule without taking into view emergencies where transgression may be pardonable. Moreover, it will never do to apply one set of penalties, with equal exactness and severity, invariably to every transgressor. As features are not made alike, so minds are not; and as minds vary, both in quality and controllability, so must they be met and managed with treatment varied to correspond to their differing developments. You never find a successful disciplinarian but you find one competent to read the traits of individual minds, as he reads and recognizes the distinctive lines and features of the countenance. This, we are fully aware, is not always an equally

natural attainment to every mind. There are mental faculties and endowments fitting for peculiar service; and this is doubtless among the qualities so denominated. But it is nevertheless capable of extended cultivation; nay, it may come to be an acquirement, just as a facility in explanation or in illustrating different points or branches of instruction comes to be a part of the teacher's qualifications for a highly responsible position.

It is, however, obviously impossible to lay down rules for the perfect acquisition of this so indispensable requisite of the successful disciplinarian. It must be acquired by practice, by experience, by close observation of mind-developments in the school-room. Hence, other things being equal, the best disciplinarians are usually found among the most experienced in meeting and dealing with mind in the study and recitation rooms. But set it down, as one of the primary indispensables of a competent disciplinarian that he discriminates both in discerning character and in adapting his governmental measures to meet the peculiarities of the character so discerned.

III. Respect your pupils' sentiments and feelings. Outraged convictions are always sure, sooner or later, to bring with the outrage a retribution. Pupils have their own opinions and views of what constitutes right both in the teacher and in themselves; and none are so quick to receive a trespass upon them. Once do violence to noble feelings, to a sense of self-dignity in the maintenance of conscience and right, on the part of one or all the pupils composing your miniature kingdom, and you have lost your crown. You have roused the spirit of rebellion, which, unless promptly allayed by timely reparation, will sweep away all authority and sap at once the foundations of order among the subjects of your rule.

Nothing is ever lost by a teacher from honest concessions where such concessions are demanded by the common sentiments of the pupils. The most experienced disciplinarians have felt that more is often lost by teachers pertinaciously insisting upon their prerogative to make decisions than there is gained in enforcing them. Why not submit to adjudication at once and frankly to the school? School

in a body rarely, if ever, when their sense of honor and justice is honestly appealed to, dissemble, or render a verdict other than the very one which the teacher himself, if he had assumed to arbitrate the case, would have rendered ; and what is more, when thus openly rendered, the verdict is counted by the pupils as their own, and they feel called upon by the principles of honor to see its sanction respected. One of the most perfectly governed schools we ever entered was one taught by a lady. In it there existed in miniature all the appurtenances of a well-regulated municipal government, with its bench of judges and its panel of jurors, its councilmen and its president, all chosen by ballot by the pupils themselves ; and these offices were considered a mark of honorable standing, and of commendable deportment, in those who were elected to them. The teacher, elected likewise by ballot, or rather by unanimous consent, was the presiding officer, or ultimate referee, in all cases of difficult or perplexing adjudication. There, too, were constitution and by-laws, all written out and ratified by unanimous vote ; and each member of the school felt responsible for their maintenance and respect.

That teacher had no occasion to assume the right to arbitrate ; it was given her freely, cheerfully. Not a scholar would have had it otherwise ; and each felt an equal satisfaction in seeing the teacher in her appropriate place at the head of the government—its queen. There were few cases of discipline ; for few felt willing to encounter the known sentiments of the school, or to disqualify themselves to occupy an honorable position among their compeers.

The very pupils who, under other and less judicious teachers, had given the most trouble and vexation, there became the most efficient sustainers of order. And why ? mainly, if not solely, from the respect in which they found the teacher holding their opinions and rights. They had a pride in seeing the entire system of discipline adopted in the school become as perfect as it could be made. Need we add that the teacher was happy in her charge ? Having one of the weightiest of all her burdens in the school-room rolled from her own to her pupils' shoulders, and borne by them with a cheerfulness and dignity worthy

the highest commendation, what else could she than feel a satisfaction and with it an instinctive exultation in the completeness of her sovereignty?

This case, it will be borne in mind, is not given so much as a model as an illustration of the advantage gained by the teacher's respecting the rights and sentiments, the feelings and the capabilities of the pupils whom he would successfully govern.

But nearly allied to the above is another requisite, viz.: That the teacher's appeals be addressed to the nobler faculties and emotions of the pupils, and not to the mere animal principle in them. Let judgment, reason, conscience be the arbiters; and the pupil's sense of honor and shame, of merit and demerit,—in a word, of justice, in its instinctive convictions, be the umpire of correction. The mind feels degraded when subjected to treatment adapted only to the control of brutes. The slave, treated as it is his lot to be, as though he had no reason, no rights to claim, and none to exercise if he had, is treacherous to a proverb. And so will every school and every scholar become where brute force, instead of honorable incentives, is made the standard of disciplinary measures.

We have already referred to the democratic or republican element, as presenting an embarrassment in the way of successful discipline in our public schools; but it is so only to those whose ideas of government in the school-room are all of a monarchical and despotic stamp. To an intelligent free-thinking, free-acting mind—a mind fully in sympathy and thoroughly conversant with the principles of a free government—it is recognized at once as a most valuable auxiliary to successful control over mind. We glory in the fact that the children of our common schools are free sons and daughters of free and self-governing sires; and woe to the unappreciative wight who aims to make his school monarchy instead of a republic, who thinks to dominate over minds as he would over animals, who makes no distinction between discipline and absolute domination.

Teachers are to regard themselves as the guardian rather than as the usurpers of their pupils' liberties. They are to remember that it is theirs not to make servants an

slaves, but to train minds for the duties and privileges of self-hood, to take their places, and that at no very distant day, as free men and free women in society whose life is liberty and whose very soul is intelligence. To them is committed a trust such as monarchs never hold, to educate minds for intelligent co-operation in the maintenance of national self-government, for bearing responsibility in a nation where the people constitute the legitimate sovereignty; where mind is the basis of national strength, and its proper training the basis of national dignity and honor. They are, therefore, never to lose sight of the design and sacredness of their high calling. Their office is to develop within their pupils the sentiments of self-dignity and self-respect, which will fit them for the occupancy of their future spheres of responsibility and duty. Let then intelligence and self-command, discrimination and justice, equanimity and prudence,—in a word, let mind, cultivated, enlightened, liberal, sway the sceptre of its government, and the school-room will become the place not of defective but of successful discipline.

OLIVER CRANE.

SYSTEMATIC TECHNICAL EDUCATION.

PART V.—TEACHERS.

THE science of cosmology has so wide a scope, that it is hard to limit the number of its professors. World-knowledge implies, first, knowledge of worlds in general; second, knowledge of our own world in particular. How worlds in general grew or were made; how stars group into systems; how suns carry their planets through space; how our own world grew out of a burning mass into a crusted earth, and what sort of revolutions brought it into fitness for vegetable, animal and human life—*there* is a story demanding almost superhuman power, knowledge, and skill, to conceive and to make plain to us. It would require the author of a "Cosmos" to teach us how cosmical systems were

made, and the philosophy of the creation of stars and of worlds is enough to occupy that one mind. But in coming down from the heights of science to the common work of life, the subject divides itself very regularly into the duties of the man who studies all the stars, and the duties of him who only studies the conformation of our own particular world; and a chair of astronomy, and a chair of geodesy, are two divisions which the nature of the subject clearly dictates.

The astronomer who studies the heavens, and the geodesist who studies the world in its larger relations as one of the planets, have both a geometry of the highest order to wield; and in addition to the geometry of the heavens, they have the physical astronomy of the heavens, and the whole field of celestial mechanics or star machinery to master and teach. To the geographer and the geologist, the more limited task is assigned of studying the world in its divisions of earth and sea, and of bringing to light the hidden treasures of both. The one has to discover to us all lands, peoples, and countries; to show the way across all seas, to fathom all depths of the ocean, to predict winds, tides, and seasons; and that is enough for one professor. To another may be safely left the discovery of all the treasures accumulated under the earth, with infinite foresight, for the use of all-consuming mankind; and to show in what folds and layers and pits each kind of matter has been deposited and stored and kept ready for our use, so that we may know how to seek and where to find it whenever we want it, *that* is quite enough for one professor of geology.

We have, therefore, in this division a professorship of cosmology, a professorship of astronomy and geodesy; and then we have four professorships of divisions—first, of mathematical and physical astronomy; second, of geodesy or mathematical and physical geography; third, of geography proper, or the surface of the earth in its continents, islands, rivers, and seas; and fourth, the constitution of the earth within, as a great storehouse of classified material. We have thus here seven professorships with ample scope and work.

The philosophy of life is a subject of still larger range—

The laws which determine life and the mode of development of living beings, and their relations to each other and to surrounding creation, is a subject sufficiently deep and large to form the duty of a single chair for the profoundest of our thinkers. The study of structure merely as an organization of matter for the purposes of life is a subject so complicated, that the structure of vegetable and of animal life each require the devotion of a separate lifetime, and must form the duty of a separate professor; and in like manner the forces which stir vegetable life, and the laws which govern its phenomena, are ample work for one or more professors, leaving to others as a separate division the study of the higher life of animals. We have thus a professor of the anatomy of vegetables, and another of the physiology of vegetable life; and we have a professor of the anatomy, and another of the physiology of animal life. We may, therefore, have in this department the following chairs:—a chair of biology, one of comparative anatomy, and one of comparative physiology; a chair of vegetable anatomy, another of animal anatomy, a third of vegetable physiology, and a fourth of animal physiology.

We have now, therefore, in the division of the philosophy of matter nature, the following chairs:—

- I. In the School of Mathematics:—Seven professorships.
- II. In the School of Physics:—Seven professorships.
- III. In the School of Cosmology:—Seven professorships.
- IV. In the School of Biology:—Seven professorships.

In the school of humanity, or the philosophy of human nature, there is ample scope for an equal number of professorships; but whether the state of education and of opinion in England would warrant or sustain the appointment of so large a number of professors in philosophies so immaterial and unmercantile as some of these, may be a matter of serious doubt. It is not improbable that in some of the schools of humanity a much smaller number would represent the importance assigned to these studies in England. The following serves as a suggestion of the smaller numbers by which this department might be initiated, leaving, it is hoped, the future prospect, with extending knowledge and refinement,

of an increased number of teachers, giving equal importance to education in the laws of mind and education in the laws of matter.

The following may be regarded as a provisional arrangement:—

V. In the School of Psychology:—Two professorships.

VI. In the School of Literature and Art:—Seven professorships.

VII. In the School of History:—Two professorships.

VIII. In the School of Politics:—Two professorships.

Thus, in the whole university we should have forty-one philosophical and scientific professorships provisionally, and ultimately fifty-six.

SPECIAL TECHNICAL PROFESSORSHIPS.

It is an axiom of education that knowledge or science is the first condition of power in art; but it is equally axiomatic that skill to apply that art will not come of itself, and requires a course of initiation—which course of initiation is called technical education. How much of this technical education shall be given in the workshop, and how much in the school, will always be a matter for serious judgment, and will depend on the nature of each subject, and the circumstances and capacities of each pupil. But it will still remain unquestionable that one part of the initiation of a man into the duties of his life will be better performed in the school, and another in the workshop, or actual business of life.

In addition, therefore, to these professorships of the science necessary to deal with the material world, there must be professorships of the best ways of dealing with matter, under the particular conditions of the destiny in life of each pupil; and it becomes a question for serious consideration, what are the professorships of application, or purely technical chairs, which shall be provided in our university. Looking at this subject *à priori* merely, one might solve the question by saying that to every professorship there might be attached a subdivision of application, to be taught either by the same professor who teaches the theory, or by a colleague appointed for the purpose. Such an arrangement would be inadequate, for this reason: that the number and

importance of the applications of a subject to the business life vary extremely, so that some of these professors would be overwhelmed while others were idle.

The number and nature of special technical chairs must, however, be carefully studied, both in relation to the professions of the students, and to the methods in which the non-technical professors conduct their teaching. In our technical university, the whole of the teaching of the pure sciences will naturally be conducted with a technical aim, and to that extent, therefore, all the chairs will be technical chairs; but complementary to these, and having as their aim—not the principles of knowledge, but the practical methods of application, will be what I call strictly professional chairs.

- I. The School of Mechanics:—Five professorships.
- II. The School of Civil Construction:—Seven professorships.
- III. The School of Naval Architecture:—Five professorships.
- IV. The School of Mines:—Five professorships.
- V. The School of Commerce:—Five professorships.
- VI. The School of Agriculture:—Five professorships.
- VII. The School of Astronomy, Navigation, and Surveying:—Five professorships.
- II. The School of Literature and Languages:—Five (?) professorships.
- X. The School of Fine Arts:—Five professorships.
- X. The School of Political Economy:—Five (?) professorships.
- I. The School of Metaphysics and Ethics:—Five (?) professorships.
- The School of Pedagogy:—Three professorships.

regard to Nos. VIII., X., and XI., it is to be remarked these professorships might possibly be all identified with corresponding professorships of pure philosophy or science, the point which would be determined mainly by personal opinion in the professor, and by practical convenience in the courses. There remain, however, of purely technical professorships, forty-five; so that, in all, our university will have a teaching staff of one hundred and one professors.

thing that is valuable in education is effort; and it is the advantage which science possesses that the interest it induces in boys induces them to make efforts in its study.

REMARKS ON "ETYMOLOGICAL REVERIES." *

AS reveries in general are very pleasant, so especially are etymological reveries. They have somewhat of the poetical, fanciful. It could be said that one difference between ancient and modern times consists in the way etymology is treated. Etymological researches of modern times are of a scientific character; but the etymologies of the ancients, for instance those given by Plato in his *Cratylus* might well be called etymological reveries. But there is one department where even now-a-days etymological reveries must be allowed, namely, in the department of roots. The roots of words, like those of trees, are hidden; there is a mystery around them; it requires a poetical mind to discover the main threads of their wonderful web of ideas and thoughts. Language itself indulges in a kind of reverie in the way it causes to come forth from one root so many trees and flowers, twigs, buds, and leaves. In so far the "Reveries" in the October number of the MONTHLY are as interesting as they are suggestive. Permit me to make a few remarks with regard to some of the most striking of them.

The author of the article shows the great part which the letter N has—with or without a vowel after it—in the form of negation. To this I would add the Hebrew word *noo* in the sense of, *to say No, to hinder, to bring to nought*; in reference to which Gesenius (Thesaurus, p. 859) points out the Semitic negative particles *la, ma, na, an*, from which are to be derived the Arabic *nah, naha, naha* and other words, signifying to hinder, to forbid, to abstain, etc. Again, the Hebrew *nooa*, he says, has the same meaning as the Latin *nuc*, *renuere*, viz.: to refuse something by shaking the head, and

* Our readers will be pleased to learn that the author of "Reveries," and other contributions to this Magazine, Dr. F. L. O. Roehrig, now of Cornell University, has lately received from the Sultan of Turkey, through the Turkish Minister at Washington, the honorable title, "Chevalier of the Imperial Order of the Medjidyé." Dr. Roehrig was for several years connected with the Prussian Legation at Constantinople, where his study of the Turkish language resulted in the overthrow of the then current theory of the grammar of that tongue, and the establishment of the true theory. The title Prof. Roehrig now enjoys is doubtless an official recognition of the honor he has long enjoyed among scholars for this service to science.—The present article, received some months since, has been unavoidably delayed.—EDITOR.

d be considered as the primary root to those significances; in the same way he shows the negative power of the particles *ne*, *na*, *an* in Sanscrit, in the Persian and other Indo-German languages.

It seems that those ideas are intimately connected with their circumstance, not less mysterious, and not less universal—the gesticulation which certainly had some part in the origin of speech. But still one may easily be led into conclusions. Nodding the head seems to us the natural sign of affirmation, and shaking the head is the corresponding sign of negation, as if to say: We won't hear anything of that, or as if to indicate our intention to shake it off. Nevertheless, the Turks have exactly the opposite signs of negation and affirmation. And so we find an opposite meaning in words belonging to the same family. While for instance the Hebrew *En* is a negative particle, the Syriac (written with the same letters) means *Yes*; as for instance in the Syriac version of Matth. v., 37. And while English *Nay* is negative, the Greek *ναι* is affirmative, especially so in modern Greek, where it stands for *Yes*.

As everything is, so to speak, affirmed by its mere existence, so in a general way the affirmative particles are of a stronger character than the negative particles. The words expressing negation are more energetic and more expressive; words for affirmation are generally expressions of agreement. The Hebrew has no word to express our "*Yes*;" it repeats the word of the question. "Art thou my son, Esau?" "I am" (it). "Do you know Laban?" "We know." From the verb *naama*—belonging both to the Hebrew and Arabic in the sense of "to be pleasant, agreeable"—comes the Arabic *naam*, "Well!" In the vulgar Arabic, *naam* signifies only "Yes," but answers also to the French "*Plait-il?*" In both cases the sense of agreeing, pleasing, is the underlying one. And so comes the Italian *si* from *Sic* (so be it);

Latin *hoc* (*sit scil.*) comes the old French *oc*, in the old *Langue d'oc*, while the form *oil* (*hoc illud sit*) was afterwards changed into *oui*. The particles of affirmation have always a more general sense than those of negation, and are consequently less powerful.

The author of the article in question finds the negation

again in *nox*, in the Semitic *lail*, *laila*, and in the Hebrew *laat*, *lot* (to hide, to cover). The later words recall to mind *lateo*, *λανθάνω* (*ἐλαθον*) etc.; and so is *nox* probably connected with *νύξ*, the Sanscrit *nakta* and many other words. It could nevertheless be that the negation is the radical sense of all those words. We find besides in Hebrew, Arabic and Aramaic the verb *laah*, denoting weakness, laziness, weariness, etc., which could be brought back to the same primary notion. And so the Semitic words for night (Hebrew and Arabic *lail*, Syriac *leljo*, Aethiopic *lelithe*) might have the negative particle *la* as prefix. But not to speak of the different etymologies given by other high authorities, there is one objection to be made. In the Indo-German languages it is very common to put the negative particle (*a* and *an* in Sanscrit, *α'* in Greek, etc.), as a prefix to a word, in order to change its meaning to the opposite, or negative one. This occurs even in words of a positive or affirmative sense; *True* and *truth* are expressed in Greek by "not concealing" (*ἀλήθεα*); *healthy* is expressed in Sanscrit by "not sick" (*anamāja*), etc. But in the Semitic languages this kind of compound words occur only in a few exceptional cases. The Semitic languages have no such words as unkind, unclean, unjust, etc. They have, to denote that, words especially framed. Besides, the *α'* privative, the prefixes *un*, *in*, etc., are generally used in regard to abstract ideas. Such striking notions as *dark*, *night*, etc. are expressed by special words. A shadow, for instance, is certainly a negation; it, nevertheless, makes the impression upon us as being a reality, and is therefore, in most languages, expressed by a special word.

The resemblance between *night* and the German *nicht* and *nacht*, spoken of in the same article, is very striking. But *nicht* is not an original word; *nicht* is (the same as the English naught) a contracted form of the Gothic *nivaihts*, the old high German *niwiht*, in the same sense as the English *nothing*, the French *ne point*, the Italian *ne punto* (*ne punctum quidem*) *ne mica* (not a bit). Even the Latin *non* is the contraction of the formerly used *nocnum* (i. e. *ne unum*), *noenu*, which occurs several times in Lucretius, who, also, uses sometime *ne hilum* instead of *nihil* (iii. 200; iv, 710; iii. 828 ed. Bernays).

Also, the mentioned resemblance between French *nuit* (from *nuire*) and *nuit* (night) seems to be the natural consequence of the formation of those words. The Latin *nocere* has gradually been changed into French *nuire*, the same as *conducere* into *conduire*, *lucere* into *luire*. From *nox*, or rather *noct* (the use of the oblique case could also be observed in the Italian *notte*, *pace*, *duce*, *legge*, all of which are derived from the oblique case) comes the French *nuit*, (old *nuict*), in the same way as *cuit* comes from *coctum* or *coct*, *conduit* from *coneductum*. The resemblance between *nuit* the noun and *nuit*, the verb is a mere coincidence as that between the pronoun *lui* (from *illujus* according to Fr. Diez), and the verb *luit* (*lueire*), or that between *puis* (Spanish *pues*, Portug. *poz*) from *post*, and *puits*, from *puteus*.

Again, the mentioned coincidence between north and left hand, south and right hand, etc., is very striking, the more so, as those denominations seem to be common to so many nations. The same as the province Yemen has its name from its being at the right hand or south (the Arabian Geographers take it in the sense of *happy*, others derive the name "Arabia felix" from the city of *Aden*, which would answer to the Hebrew *Eden*, happiness), so the province Dekkan, in East India, has its name from Sanscrit *dakshina* (whence *δεξιό's*, *dexter*) which signifies both right and south. Gesenius (Thesaurus, p. 72), Rosenmüller (Bibl. Alterthumskunde I., p. 161), and others show that in the Hebrew, the Arabian, the Sanscrit, the Irish and the Mongolian, the East is considered as the part before, the west as behind, and that consequently the south is at the right hand. S. C. Malan says that the same denominations exist in Mandchu and in Coptic.¹ J. Grimm in his "*Geschichte der Deutschen Sprache*" has devoted a whole chapter (chap. 40) to the various denominations of right hand and left hand: the latter is called by the Esthonians *karra*, *karri*, i. e., the bad, the wrong hand; the right is called the good hand; and so likewise by the Finnish, the Laponians and many others. The same subject is treated in an Italian periodical (*Ascoli, Studi Orientali*, 1855).

¹ "A vindication of the authorized version of the English Bible," by the Rev. S. C. Malan, p. 80.

With regard to the foregoing I have treated the same subject at length in the *Zeitschrift der deutschen morgenländischen Gesellschaft* (1867). There I proposed another view viz., that originally there were only two regions distinguished. South and east together were called the front part, the part before, also the right side, or the bright side in opposition, north and west together were called the part behind, or the left part; south as well as east being considered as the part in front: *Kadim* in Hebrew (from *keden* before) would signify not only east, but also the south, the same as *Zophon* (from a root which signifies to hide) would denote north and west (hence perhaps the Greek *ζόφος*, *πρὸς ζόφον*). What induced me to that hypothesis is the fact that the Arabic *kabul* signifies east wind, while *kibla* denotes the south both from a root, with the signification "before, in front"; that Homer distinguishes only two sides one of which is called the bright, also the right side, while the other is called the dark, or the left, or the part behind that in the Hieroglyphics east and right are expressed by the same sign, as also west and left side; that the Chinese call the south the part before, the north the part behind and many other instances showing the same tendency. Going out from the same idea, I tried to explain why the Greek considered the left side as of evil omen (whence Latin *sinister* signifies both left and inauspicious), while the Roman considered it as of good omen, the south being the front part of the Augurs, the east the left. As we express mourning by the black color, while light color and the many colored flowers are the emblems of joy, so in most languages there is connected with the notion of dark the idea of something disagreeable; everything agreeable is brought in connection with light and bright, and even right. And so again I tried to show how the Semitic *Jamin*, *right*, *south*, and *happy* (whence the name of Benjamin) is connected with the word *Aman* (whence *Amen*) *to be true, firm*; so that the denomination of the right hand is the same as we say in German "*die rechte Hand*," the *right* hand in English—that is to say the true hand, *the* hand, as in a similar way in Greek the left hand is also called "the other hand" (*ἡ ἑτέρα*;) that the right

side is at the same time the bright and the front side; that in the same way that Homer calls death *darkness* (*σκότος*), so with the west is associated the idea of death, with the east the idea of life; that again life, light, happiness, wisdom, righteousness, glory, etc., are considered as in intimate connection with each other, and that the various words expressing those qualities often sprung forth from one and the same radical word as the primitive idea.

M. GRÜNBAUM.

A CASE FOR CONSIDERATION.

THE thoroughness of teachers now-a-days is not less astonishing to a veteran of the old school,—which I may fairly call myself, having taught our district school for three winters, some forty years ago, and a good teacher I was counted too, if I do say it,—the thoroughness of teachers now-a-days, I repeat, is not less astonishing than the quantity and variety of the instruction they give, and the splendid books and things they have to help them in their work. If you could only have seen the school I had to teach, and the children's books, and the benches and everything,—though you couldn't have found in those days a better school or school-house the county through,—if you could have seen *them*, I opine that you would not be so free in finding fault with what teachers have to do with now.

I didn't set out, however, to make any comparison of those old times with the present, though I have half a mind to do it sometime, but rather to ask your opinion of a special case which seems to me to be somewhat extraordinary. The occasion is a series of questions on chemistry lately propounded to and answered by a grand-daughter of mine, at an examination of her class in the High School. The class have just finished chemistry, having studied it some twelve or fourteen weeks. The thorough mastery of this abstruse science in so brief a period by a mere girl,—or “young lady” as I should say after the modern fashion,—fairly fills me with astonishment; and yet she assures me that only about

one-fifth of her school time was devoted to the science. Perhaps I over estimate the work she has done, and take an unwarrantable pride in telling of her success; nevertheless and in spite of her repudiation of my commendations, I am not at all inclined to believe her accomplishment to be "nothing extra," as she, with Young American *sang froid*, is pleased to call it. Is it possible that the girl, and her school and the teacher who has taught them, are no better than the average? I am no chemist myself, and so may not be competent to judge in the matter, yet I cannot by any means believe, and I may add, the girl's mother (she was a good scholar too, in her day, though of course she never studied chemistry), the girl's mother is as little inclined to believe it *ordinary* work. Will not you, or some of your contributors decide the matter for us?

Here are the questions, together with the answers given by my grand-daughter in writing. I have compared the answers with the words of the book, and assure you that they are correct *in every instance*. If you do not call that *extra* good reciting, I should like to know what you *do* call it. I have marked the pages of the book so that you can verify the answers for yourselves.

G. R. ANDPERE.

[NOTE.—We print below the paper (a transcript evidently; we should have been better pleased had we received the original) which so delights and astonishes our venerable friend, fully sympathizing with him in the latter emotion at least. Considering the amount and kind of information the paper exhibits, as the result of three months' study of chemistry, or even as a measure of that result, it is to be hoped that the case as narrated is *not* an "ordinary" one.—EDITOR.]

Examination Paper of Miss A. — Girls' High School.
Class B. Chemistry.

Q. What is chemical affinity?

A. Chemical affinity is that force that causes the elements of matter to unite and form new compounds. (9).

Q. What is the real test of an acid?

A. It unites with bases to form salts. (13).

Q. What is a base?

A. A base is a substance that unites with an acid to form a salt. (14),

Q. What is a salt?

A. A salt is a ternary compound formed by the union of acid and a base. (14).

Q. What is an alkali?

A. An alkali is a base that has a soapy taste and feel. It runs the *ium* of its termination to *a*. (14).

Q. What is the character of O?

A. It is destructive in all its effects. It is all around us, and, like a lurking lion, constantly on the watch for a chance spring upon and devour something. (22).

Q. How does O act when an animal dies?

A. The instant his victim expires, and sometimes a little sooner, he is so anxious to commence, he begins to remove that which will soon be an offence to all sensitive nostrils. (22).

Q. Give an instance of the ferocity of O.

A. The blacksmith draws a red-hot iron from his forge. Here O seizes the opportunity while the metal is glowing and bites off great scales of the black oxyd of iron that fly every direction. (23).

Q. What does blood contain?

A. Blood is full of little iron disks, or gas-bags. (24).

Q. How does O behave in blood?

A. Here the O revels in high life. It sweeps tingling through every artery and vein, distends each capillary tube, sends the quick flush to the cheek, snatches up its portion of the food that comes out of the stomach, gnaws away at the nerves and tissues, eats out every worn-out muscle and all waste matter, until at last it comes back through the veins, thick with the products of its toil—the cinders of the fire within us. (24).

Q. What chemical action goes on in the human body?

A. The body is a stove in which fuel is burned, and the chemical action is precisely like that in any other stove. (25).

Q. How does O produce motion?

A. The action of O in the movement of muscles is very singular. In order to move a limb, the muscle must contract. The O unites with part of the muscle, destroys its structure, and so shortens it. (25).

Q. How is the truth of this established?

A. The truth of this is shown very clearly when we remember that as soon as we begin to perform any unusual exercise, we commence breathing more rapidly,—showing that we need more O to unite with the muscles to perform our work. (25).

Q. How often do we experience a change of heart?

A. As the heart works day and night it burns out in about a month. So we have a literal “new heart” every thirty days? (26),

Q. What can you say of the conduct of nitrogen?

A. Nitrogen may be induced to join its fortune with iodine, but so gingerly, that if we even tread heavily in the room where it is kept, it will leave its partner in his high dudgeon, and bound off into the air with a tremendous explosion. (32).

Q. What is it to "set the North river on fire"?

A. To "set the North river on fire" is only a poetical exaggeration. (48).

Q. Mention a marvellous effect of water.

A. A few ounces of water causes the physical difference between the round, rosy face of sixteen, and the wrinkled, withered features of three score and ten. (48).

Q. What is the law of physics?

A. "Cold contracts" is the law of physics. (52).

Q. What is the general condition of water?

A. Water is full of contradictory terms. (52).

Q. What makes a good pavement?

A. H is the lightest of substances, and O is an invisible gas, yet they unite and form a solid which makes a pavement as hard and unyielding as granite. (52).

Q. Mention an important fact in connection with H.

A. H burns readily and explodes most fearfully. (53).

Q. What is the supposed origin of diamonds?

A. Diamonds are supposed to be of vegetable origin, and to have ended, at some past time, as gum does now from cherry trees, and then slowly crystalized into octahedrons and other forms. (55).

Q. What can you say of the appetite of C?

A. At a high temperature the appetite of C for O is insatiable.

Q. What is the composition of air?

A. The "air we breathe" consists of N, O, CO₂, and watery vapor. The first composes $\frac{4}{5}$, the second $\frac{1}{5}$, the third $\frac{1}{100}$, and the last a variable proportion. (82).

Q. What may be said of the valor of chloride of lime?

A. A handful of chloride of lime, thrown under the floor, will vanquish even a dead mouse, or any other odoriferous domestic animal, living or dead.

Q. What is the cause of phosphorescence?

A. Phosphorescence is generally attributed to the gradual oxydation of the phosphorus secreted by the animal or plant. (103).

Q. What are the principal varieties of Fe?

A. Cast Fe, wrought or malleable Fe, steel and galvanized Fe. (129-30).

Q. What deception is practiced by cutlers?

A. Cheap knives made of cast iron are often heated with

charcoal a little time, so that the outside only becomes steelified as it were. (130).

Q. How is gold found in nature?

A. It occurs sometimes in cubes, in masses called nuggets, and is always native. (145).

Q. What can you say of the friendliness of S?

A. The perspiration from our bodies contains more or less S, and this, as it passes through our pockets, fraternizes with my silver we may chance to have there. (149).

Q. How is gun-cotton prepared?

A. Gun-cotton is prepared by dipping celular tissue in strong NO_3 . (162).

Q. What can you say of the fecundity of vinegar mother?"

A. It acts as a ferment and frequently generates a nation of infusoria—vinegar eels. (177).

Q. What effect has vinegar on young ladies?

A. In the case of young ladies who use it (as well as slate pencils) to relieve corpulency, it produces delicacy and finally consumption. (178).

Q. What does lock-jaw infallibly prove?

A. This symptom infallibly proves to the physician that death has been caused by strychnine. (200).

Q. Describe the process of putrefaction?

A. The P, and S present in flesh especially, taking up the H in hot haste, and flying off as sulphuretted hydrogen and phosphuretted hydrogen, salute our olfactories with their well known odors. (211).

Q. What are the chemical characteristics of the hog?

A. The hog is a filthy animal, a gross feeder, and subject to so many cutaneous diseases, that he will even stop eating for the luxury of being scratched. (220).

Q. Describe bismuth.

A. Bismuth is a reddish-white metal. It is known chiefly as an oxyd, in which form it is much prized as a cosmetic by those whose fading charms necessitate the use of pearl powder. (248).

Q. What caution is necessary in the use of pearl powder?

A. This should not be indulged in by ladies intending to visit chemical laboratories, or lectures, as a few bubbles of H S escaping into the air will change the snow-white complexion into a most suggestive black. (248).

[NOTE.—We are compelled to omit the remainder of the paper, our limits forbidding further indulgence. Enough has been given, however, to show how successfully our worthy contributor's grand-daughter has been chemically "steelified as it were" by her brief exposure.
EDITOR.]

“*AND*” AT THE BEGINNING OF A SENTENCE

THE argument by which Mr. Barrett attempts, in April number of the MONTHLY, to show that it is “improper, inconsistent, and contradictory to commence a sentence after a period with the conjunction *and*,” will be specious; but,

1. If it proves anything, it proves too much. It proves not merely that *and* should never be used to begin a sentence immediately after a period, but that no conjunction should ever be so used, not even *but*, or *nor*, or *either*, or *or* *therefore*. And yet Mr. B. himself begins the fourth paragraph of his article with a “conjunction.”

2. The argument is sophistical. Speaking of the period he says it “indicates a completion,”—“a full stop.” Looking at the matter as it is, speaking, the pause at a period may be called a “full stop,” as it indicates a verbal completion of a sentence. But it is very far from always indicating a full stop in the sense of the word. This, oftentimes, is reached only with the end of a discourse. If, therefore, there is not a “full” stop in the sense, we see not why sentences may not sometimes be coupled by *and*, even though the former of them is closed with a period.

3. It is opposed to the practice of scholarly writers. Steele frequently begins a sentence after a period with *and*. “*And*, though it may be said that this is awful, yet,” (*Spectator*, No. 360). Addison does the same:—“*And*, to end that this college of statesmen may be thoroughly practised in the political style, they are to make use of etc.” (*Do*. No. 305). Junius does it:—“*And* now, Sir William, I shall take my leave of you forever.” (*Letter VII*). Macaulay does it:—“We have of late observed with great pleasure some symptoms which lead us to hope that respectable literary men of all parties are beginning to be impatient of this insufferable nuisance. *And* we purpose to do what in

¹ A good illustration of this may be seen at the close of the 4th chapter of St. Matthew's Gospel. Compare the first clause of the first verse of Chapter V. with the last verse of Chapter IV. How closely connected the thought! And yet the two verses are separated, not improperly, by a period.

for the abating of it." As Mr. B. himself admits, our best scholars and most elegant writers "frequently" begin a sentence with *and*. And why not if the sense justifies it?

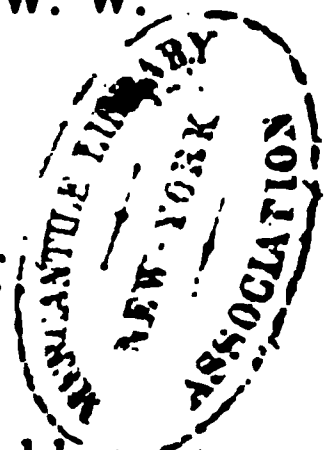
Mr. B.'s reasoning displays an ignorance of one of the simplest and obvious principles of grammar and punctuation. For, as Lindley Murray says, "as there are many functions and connective phrases appropriated to the joining of sentences, that are never employed in joining members of a sentence; so there are several conjunctions appropriated to the latter use, which are never employed in the former; and some that are equally adapted to both those purposes: as, *again, further, besides*, etc., of the first kind; *lest, unless, that, so that*, etc., of the second; and *but, and, therefore*, etc., of the last."

That the conjunction *and* is often improperly used, not at the commencement of sentences but elsewhere, we admit. But the idea that a sentence should *never* begin with *and* is absurd. It would be quite as sensible and worthy of consideration to insist that a sentence should never begin with *but* or *nor*.

S. W. W.

EDUCATIONAL INTELLIGENCE

NEW YORK.—Altogether the most commendable report from our State Department of Education, that we have ever received, is that of Mr. Weaver, for the current year. It reviews the condition and working of our school system—its merits, defects, and needs—in a style at once plain, dignified, and critical, as befits so important a document. The absence of educational common-place and cant is especially noticeable, the Superintendent's practical and business-like views being presented with a straightforwardness and candor too rarely exhibited in School Reports. The review of the deplorable condition of the district schools, the judicious criticism of the system of school supervision, and the discussion of proposed changes in the



organization of the school system, should be attentively read by every parent in the State, as well as by teachers and school officers. The statistics reported are full, and to the point; and show that the improvement made in the schools in 1868, the first year of departure from rate-making, was not only sustained, but surpassed in 1869. For example, while the school population reported shows a slight decline for the year, the increase in the aggregate number of days' attendance at school was equivalent to nearly a million days. The State is divided into 11,784 school districts, containing 11,703 school-houses, classified, according to the materials of which they are constructed, as follows: Log, 151; frame, 9,894; brick, 1,140; stone, 518. The amount spent for school-houses, outhouses, sites, fences, furniture and repairs during the year was \$2,455,453. The reported value of all the school-houses and sites was \$16,459,000. The average value of school-houses and sites is, in cities, \$29,400; in the rural districts, \$678. The average value of school-houses in the rural districts is nearly seven per cent. greater than it was three years ago. The rapid increase in the value of the school properties reported by the Superintendent considers as evidence of the fact, that the people appreciate the importance of comfortable and commodious school-houses; and that, encouraged by a system which promises stability, and which affords year increased facilities for the acquirement of useful instruction, they are willing to tax themselves largely to aid in carrying out the plan. The whole number of children between the ages of five and twenty-one, as reported, 1,463,299, a falling off of 630 from the number reported in 1868. Of these children, 607,583 were reported from cities, and 855,716 from the rural districts. The aggregate attendance upon the common schools during the year 1869, 998,664, the average daily attendance being 468,421. The increase in the average daily attendance was 22,553. Since 1867, when the schools were made entirely free, the increase in average daily attendance has been nearly 50,000, notwithstanding the school terms have been lengthened two weeks. The average length of terms the past year was, in cities 32 weeks 2 days; in rural districts 32 weeks and 4 days.

average for the State was 35 weeks and 1 day. Besides the children instructed in the common schools, there were in the private schools 125,931; in academies, 30,131; in colleges, 2,499; in normal schools, 3,541—making the aggregate school-going population of the State, 1,160,766. The whole number of teachers employed in the common schools was 28,310—males, 6,230; females, 22,080. The amount expended for teachers' wages was, in the cities \$2,790,069; in rural districts, \$3,302,111—total \$6,092,180; increase, \$494,673. The average salary for each teacher was, in the cities, \$642 87; in the rural districts, \$257 86. The average for the State was \$355 02. The entire amount expended during the year for the support of public education, not including appropriations in aid of orphan asylums and other charitable institutions, was \$10,107,289 35.

ONTARIO.—The report of the Chief Superintendent of Education for the year 1868, though tardily published, is an interesting and instructive document, especially in that it shows the working of a school system resembling, yet in many respects widely different from, our own. In obedience to an old statute, the returns of school population include only those between five and sixteen years of age, though the school law confers the right of attending the public schools upon all residents between five and twenty-one. The population of Ontario is not far from 1,500,000, allowing for a reasonable increase since the census of 1861. The school population (5 to 16), as reported for 1868, was 464,315. Of this number 397,792 were enrolled in the public schools. The pupils of other ages swelled the total attendance to 419,899,—boys, 221,807; girls, 198,092. The average attendance was only 169,978. The increase in the number enrolled was 18,256, and in average attendance 6,004. The average time of keeping the schools open (including one month of legal vacation and holidays) was over eleven months—from two to three times the average term in the United States. The number of educational institutions of every kind reported was 4,882; increase, 27. These institutions were classed as follows: Common schools, 4,318; county grammar schools, 101; R. C. separate schools,

162; normal and model schools, 3; academies and private schools, 282; colleges, 16. The whole number of pupils and students attending these schools was 434,933; increase, 18,121. The number of institutions not classed as common or grammar schools shows a decrease of 30, with a decrease of 88 in the number in attendance. Whether this results from an actual falling off, or from a failure to report, there is no means of determining. The number of children reported as not attending school was 37,052—an ominous and humiliating item, in the opinion of the Superintendent. If none of the absentees were ever at school for any profitable period, or were likely never to become school-goers, the item might well be called ominous. To our mind, however, it is less humiliating than the fact that the average attendance at the public schools is but little over two-fifths of the enrolment. The number of teachers employed in the common schools was 4,996—males, 2,777; females, 2,219. The number of male teachers shows a decrease of 72; the number of female teachers an increase of 178. The Superintendent justly complains of the inadequate remuneration of teachers. The highest salary paid to a male teacher in a county was \$635, the lowest \$100; the highest in a city \$1,300, the lowest \$250; the highest in a town \$1,000, the lowest \$260; the highest in a village \$600, the lowest \$300. The average salary of male teachers in counties was \$260, of female teachers \$188; in cities, of male teachers \$600, of female teachers \$228; in towns, of male teachers \$477, of female teachers \$224; in villages, of male teachers \$418, of female teachers \$193. As a rule, the teachers in Canadian schools do not “engage in other employments during the years of their teaching.” This being the case, it is a mystery how some of them live. The number of schools supported entirely by rate on property, and free to all residents between five and twenty-one years of age, was 3,986, an increase of 48. The number partly supported by a rate-bill was 494, a decrease of 90. A general wish has been expressed that all the schools be made free by law. The whole number of school-houses reported was 4,502, increase 55; of these, 733 are brick, increase 54; 433 stone, increase 52; 1,785 frame, no increase; 1,528 log, decrease 53; not re-

ported 23. The whole number of school-houses built during the year was 171, increase 31. Of the new houses, 50 were brick, 26 stone, 65 frame, 30 log-houses. The public schools of Ontario are non-denominational, though, by special act, separate schools for Roman Catholics have been established where desired by the people, and aided by the Government; the apportionment being made according to the average attendance as compared with that of the public schools in the same municipalities. The Council of Public Instruction provides religious facilities, even forms of prayer, and makes recommendations on the subject; but does not assume the authority of enforcing compliance with such provisions or recommendations. No child can be compelled to be present at any religious instruction, reading, or exercise against the wish of his parents or guardians expressed in writing. About three-fourths of the schools are daily opened and closed with prayer. The religious persuasions represented by the teachers were chiefly as follows: Church of England, 811 teachers, increase 16; Church of Rome 563, increase 11; Presbyterian 1564, increase 22; Methodist 1,506, increase 91; Baptist 271, increase 5; the other denominations were represented by small and decreasing numbers. Of the 563 Roman Catholic teachers, 327 taught in the public common schools; and the rest, 236, in the separate schools. Less than one-third of the children of Roman Catholic parents attended the separate schools. The most striking peculiarity of the Canadian system is the control assumed by the Council of Education in making and supplying the books and apparatus used in the schools. By this plan they claim to secure: First, uniformity of text-books; secondly, due remuneration of authors; thirdly, accuracy and uniformity in the printing of the books used, a proper standard of excellence in their paper and binding, at the same time preventing monopoly, and encouraging competitive skill and enterprise in their publication. The plan of the manufacturing and distributing branch of the Department is thus explained: "The maps, globes, and various articles of school apparatus sent out by the Department, apportioning one hundred per cent. upon whatever sum or sums are provided from local sources, are nearly all manufactured in

Canada, and are better executed, and at lower prices, than imported articles of the same kind. The globes and maps manufactured (even in the material) in Canada, contain the latest discoveries of voyagers and travelers, and are executed in the best manner, as are tellurians, mechanical powers, numeral frames, geometrical forms, etc. All this has been done by employing competitive private skill and enterprise. The Department has furnished the manufacturers with the copies and models, purchasing certain quantities of the articles when manufactured, at stipulated prices, then permitting and encouraging them to manufacture and dispose of these articles themselves to any private party desiring them, as the Department supplies them only to municipal and school authorities. In this way new domestic manufactures are introduced, and mechanical and artistic skill and enterprise are encouraged, and many articles for school and domestic instruction, heretofore unknown amongst us, or only attainable in particular cases with difficulty, and at great expense, are now easily and cheaply accessible to private families, as well as to municipal and school authorities all over the country. It is also worthy of remark, that this important branch of the Education Department is self-supporting. All the expenses of it are reckoned in the cost of the articles and books procured, so that it does not cost either the public revenue or school funds a penny beyond what is apportioned to the Municipalities and School Sections providing a like sum or sums for the purchase of books, maps, globes, and various articles of school apparatus. I know of no other instance, in either the United States or in Europe, of a branch of a Public Department of this kind, conferring so great a benefit upon the public, and without adding to public expense."

The whole amount provided for common school purposes for 1868 was \$1,789,332, of which the legislative appropriation amounted only to \$171,987, the sum of \$1,617,345 being provided by local effort. The total expenditure for common school purposes was \$1,588,434; increase, \$115,200. This sum was distributed as follows: For salaries of teachers \$1,146,543, increase \$53,027; for maps, globes, apparatus, prize books, and libraries \$31,159, decrease \$1,

for sites and building of school-houses \$54,610, increase \$3,975; for school-books, stationery, fuel, etc., \$169,813, increase \$118,997.

WEST VIRGINIA.—Capt. Zeigler, General Superintendent of Free Schools for this State, died of consumption, Feb. 17th ult. President A. D. Williams, of West Virginia College, has been appointed to fill the vacancy by the Governor, and has entered upon the discharge of the duties of the office. Prof. Williams was at one time City Superintendent of Schools in Lawrence, Mass. The Capital of the State was removed from Wheeling to Charleston, Kanawha Co., on the first of February, and accordingly the State Superintendent's office is now at the latter place. The school system in this State meets with many embarrassments, but is gradually working its way into popular favor. A new Normal School was established at West Liberty, near Wheeling, by the recent Legislature.

ST. LOUIS.—With a population of about 250,000, St. Louis had last year 76,443 children and youth between 5 and 21 years of age, 50,200 of whom were between six and sixteen. For these the City provided forty school-houses, containing fifty-one schools, giving employment to 390 teachers, as follows: 1 normal school, 6 teachers; 1 high school, 10 teachers; 32 district schools, 317 teachers; 5 colored schools, 11 teachers; 12 evening schools, 46 teachers. The average number of teachers employed in the day-schools was 344—males, 29; females, 315. The total number of pupils enrolled was 23,714, less than half the population between six and sixteen years of age. This attendance was distributed as follows: normal schools, 130; high schools, 375; district schools, 19,764; colored schools, 917; evening schools, 3,528. There were 200 days of school, and 527 pupils attended the full time; 6,814 were absent from one to twenty days; 2,997 were absent from twenty to forty days. The pupils that were not once absent during their enrolment numbered 1,145, while 11,995 were not once tardy. The cases of tardiness were a little more than one for each pupil enrolled. The table giving the percentage of

the number enrolled in attendance for periods varying between twenty days, shows that 2 per cent. attended the full time; 32 per cent. from 180 to 200 days; 14 per cent. from 160 to 180 days; 9 per cent. from 140 to 160 days; the remainder were about equally distributed through the remaining six periods of twenty days each. The average age of the pupils was ten years. The table exhibiting a comparison of numbers enrolled at different ages for the past decade shows a considerable increase in the number of pupils over ten years old. This the Superintendent, Mr. Harris, notices with pleasure, though he is constrained to remark as a great evil the continued premature withdrawal from school of a large proportion of the pupils. In his opinion, and we coincide with it, one year's additional tuition at the age of thirteen (the age at which pupils drop off from school most rapidly) is worth more than two years before the age of ten. Mr. Harris's remarks concerning the loss to the community in this cutting short the number of men of directive power are worthy of the widest circulation. So too are his remarks in regard to the necessity of the separation of religious instruction from the public school course. In regard to primary instruction, Mr. Harris stands up sturdily for books. If we are to be beset with poor teachers, he says the text-book renders the damage more endurable, while with good teachers, the text-book is the means of the highest development of independent activity in the pupil—provided we would add, that the text-book is not, as is too seldom the case, the work of an unendurably "poor teacher." As a counterblast to the sometimes increasing popular cry against text-books, Mr. Harris's defense of them, and the system which makes them the chief reliance, is worth repeating. He says: "The course of study in our schools is made out briefly on this plan: Starting with the national idea of self-government and independence for each individual, it aims to give each pupil, as soon as possible, the means of acquiring information by himself; he is to be self-educated, if at all. Hence, from the very beginning the child is given a text-book, and is expected to master it. First, he learns his primer and speller; then, as he learns to read, the primary arithmetic and geography are placed in

his hand, and he is expected to gain his knowledge by study. What he learns by his own effort makes him strong and independent; what is poured into him is not of much account. Where no text-books are used, the teacher has to give the details as well as to point out the general relations, and the pupil's memory is too much strained by his effort to retain what he hears only once or twice; for it is much easier for the memory to retain that upon which it may dwell as long as it likes, reading over and over again the printed page. Thus it happens that the very system which is claimed by its advocates to rely on the thinking power rather than the memory is the one that taxes the memory most from the outset. The teacher who does not use a text-book must take more time on the details, since the pupil is to get them all from him. The teacher who uses a text-book has far more time to discuss the general relations of the subject, for he can rely on the pupil's having mastered at least the details by himself from the book. Accordingly our system of instruction rests on the idea that 'Not what the teacher does for the pupil directly, but what he gets the pupil to do for himself, is of value.' The printed page is the mighty Aladdin's lamp, which gives to the meanest citizen the power to lay a spell on time and space. It is the book alone that is reliable for exhaustive information. The oral instruction alone of Germany does not make her scholars, although it is carried on from the nursery talk of the Kindergarten up to the lectures of the University. It is that never-tiring German diligence which devours books by the whole alcove at a single meal; it is this that makes German books such magic treasures; and it is this alone that will make America a land of scholars. A dim recognition of this has all along existed among our educational men; but it is after all our political instinct that has saved us. Not to pour in preconceived theories and fill up the mind of the pupil with ready made doctrines, but rather the training of the pupil in the method of mastering printed books, is our aim from the first day of schooling to the last. This shuts a door to the arbitrariness of teachers most effectually, and makes it nearly innocuous. Every step toward the ability to master the printed book is a step toward free-

dom from, and independence of, living teachers. Thus oral education is a giving of the conventionalities of a perpetual self-education. The mere oral instruction is at best like the fitting out an emigrant train with an immense supply of sawn lumber, and a store of grain or flour to last for years while text-book education is like the loading such a train with saw mills, and steam engines, and grist mills, and seed planters, and reapers, with a view to make lumber from the forests in the distant home as it shall be needed, and to gather harvests there by the aid of the tools transported thither."

CURRENT PUBLICATIONS.

BEFORE bringing out the eleventh edition of his French Grammar,¹ Mr. Magill submitted it to the critical examination of *M. Bescherelle aîné*, author of the "Dictionnaire National," and incorporated into the body of the work such changes and corrections as were suggested by him. There has also been added to this edition a supplement containing a treatise on punctuation; the inflections of negative, interrogative, and negative-interrogative forms of verbs, passive and reflective verbs, and neuter verbs conjugated with the auxiliary *être*; also, an alphabetical list of verbs whose tenses are formed irregularly or are defective with the inflection of the irregular tenses. The author has further introduced at the close of the English exercise some eighty pages of exercises in French, from Part I. of his "Introductory French Reader."² The "Reader" contains a graduated series of exercises adapted to the different parts of speech and to syntax; familiar conversations; a selection of pieces from the best French writers; explanatory notes; observations on pronunciation; and, finally, a brief French-English Dictionary, giving the pronunciation of the words and their etymology. As a sequel to the latter

¹ A FRENCH GRAMMAR. By Edwd. H. Magill. Eleventh Edition. 12mo., pp. 443. Boston and Chicago: Woolworth, Ainsworth & Co.

² AN INTRODUCTORY FRENCH READER. The same. Sixth Edition. 12mo., pp. 451.

vOLUME, Mr. Magill has prepared a volume of selections in **p**ROSE and poetry,¹ to be used as an advanced Reader. The **s**ELLECTIONS are intended to represent the principal French **w**RITERS from the time of Louis XIV. to the present day. **T**HE arrangement is chronological, and each section is introduced by a brief biographical notice of the author from **w**HOM the selections are taken: seventy-eight authors are **t**HUS represented by one or more characteristic extracts.

MR. LAWRENCE'S "Model Speaker"² comprises as full and **c**HOICE a collection of short poems and prose pieces suitable for elocutionary practice and public reading as we have **e**VER seen. A large portion of the book is made up of **s**ELLECTIONS that have not heretofore found their way into **s**UCH collections. The book is an excellent one for **a**DVANCED reading classes, as well as for students of elocution. **G**REAT care has evidently been taken by the author to give correct versions of the pieces selected, yet an occasional slip of the type has occurred, as when *The Little Fair Soul* (p. 319) says:

" Kind saint, put by your palm and scroll,
And come unto (*undo*) the door for me !"

The mechanical execution of the book is admirable—a characteristic, indeed, of all the books issued by this firm.

ANOTHER popular Elocutionist has published a collection of favorite pieces of prose and poetry for "School, Parlor, and Lyceum Readings,"³ namely, Mrs. Randall, of the Oswego Normal School. Though less comprehensive than the collection noticed above, this contains very many fresh **s**ELLECTIONS of a light and entertaining character. The **r**EADINGS are introduced by a brief treatise on the art of elocution, the most valuable portions of which are sections seven and eight,—methods for self-culture and methods for teaching reading. The table of exercises for developing and

¹ FRENCH PROSE AND POETRY. By Edward H. Magill, A.M. Boston and Chicago: Woolworth, Ainsworth & Co.

² THE MODEL SPEAKER. By Philip Lawrence. Philadelphia: Eldridge & Brother. 12mo., cloth, pp. 395, \$1 50.

³ READING AND ELOCUTION. Theoretical and practical. By Anna T. Randall. New York: Ivison, Blakeman, Taylor & Co. 12mo., cloth, pp. 430, \$1 50.

improving the voice should be in the hands of every student of the art of reading, and the order of exercises in conducting primary classes, in the practice of every teacher of the art.

HAVING made one reasonably successful text-book, Mr. Hanson must needs comply with the request of several distinguished teachers, as all authors do, and prepare another¹ to go with it, with a promise of more to follow. The new book is "Cæsar's Commentaries on the Gallic War," following the text of George Long. With the notes, which occupy about a hundred and twenty-five pages, are parallel references to the Grammars of Harkness, Bullions and Morris, Andrews and Stoddard, and Allen. The vocabulary covers one hundred and fifty-two pages. The book, a large 12mo., is clearly printed on fine white paper, and substantially bound.

MESSRS. CHAS. SCRIBNER & Co. have just completed their library Edition of Froude's masterly "History of England."² The closing volumes, XI. and XII. of the whole work, and V. and VI. of the portion devoted to the reign of Elizabeth, cover a period of great events, and fully sustain the high rank which the previous volumes have won for the author. The edition is well printed on heavy toned paper.

THE latest volume of The Illustrated Library of Wonders, "The Sun,"³ is one of the most instructive of the series. It will be read with pleasure and profit, not only by beginners in astronomical science, but by those who, though generally acquainted with the subject, have not kept themselves read up, so to speak, on the theories and discoveries of modern observers. The series should be in every school library.

¹ CAII JULII CÆSARIS COMMENTARII DE BELLO GALLICO, with notes, etc. By J. H. Hanson, A.M. Boston: Woolworth, Ainsworth & Co. \$2.

² HISTORY OF ENGLAND, from the Fall of Wolsey to the Defeat of the Spanish Armada. By James Anthony Froude, M.A. Vols. XI. and XII. (pp. 702 and 658), crown 8vo., cloth \$3.

³ THE SUN. By Amédée Gullemin. New York: Charles Scribner & Co.

AMERICAN EDUCATIONAL MONTHLY.

JUNE, 1870.

THE ABUSES IN THE SCHOOL-BOOK BUSINESS.

OUR readers will be interested in the following extracts from a paper* read by Mr. J. C. Barnes at the recent meeting of the PUBLISHERS' BOARD OF TRADE:—

“It is now over twenty years since agents were first employed by the leading publishers. Formerly the issues of new books found their way into schools through merchants who purchased their semi-annual supplies from the booksellers in the large cities. More recently new books were introduced by means of agents, and for a time the plan worked well, but since 1862 there has been a larger extent of territory covered with agents than ever before, and now at least 350 able-bodied men are engaged in presenting the claims of the books published by twenty extensive establishments. So many men in the field, frequently meeting in squads of eight or ten in an important city where a change in text-books is contemplated, each of the eight or ten opposed to the other, with a competing series of books, it is not strange that some sharp practice is resorted to, every man striving for success in securing the adoption of his particular series of books.

“As the abuses alluded to are equally prominent, we commence and continue as points occur to us.

“First. Agents in the field, opposed to each other with competing series of books, strain every point to accomplish success, and the means used will not always bear investiga-

* For its literary character we are not responsible.

tion. In their anxiety to make a favorable report they will sacrifice their better judgment and their principle, and often betray their employers at the same time, to gain their end. Teachers and members of Boards of Education are subsidized in a manner that the publisher himself would never sanction, if submitted to him; and the evil has grown to such extent that now hardly an introduction is secure without a reward of *some* sort being offered, for personal influence or services, to accomplish what it will take from two to five years' sales to get back expenses and begin to realize a profit.

"Second. Teachers are rapidly acquiring a knowledge of how 'these things are done,' and are not slow in turning an 'honest penny' by offering their services to agents: *subs*, or holding themselves open to overtures; or, not meeting with '*accidental*' chances, they open a correspondence with publishers, who are supposed (and really are) to be ignorant of the situation, proposing to have samples of series of Readers, Geographies, or Arithmetics (sometimes one series and sometimes all), which they desire to examine for the purpose of introduction. These samples are sent. Perhaps the very books are used, and have been for years. Soon the said teacher writes again, and orders a given quantity at Introduction price. They are sent, and sold at full rates by the teacher, and the publisher congratulates himself on a new introduction.

"Third. The country dealer has begun to smell a mouse and sees a profitable catch. His purchases have heretofore been made from headquarters. He proposes to a friendly teacher to correspond for another series of books, offering his (the teacher's) services to secure their adoption for a commission on introduction price. This is gladly accepted by the publisher, and a good liberal shipment is made. The dealer takes them to the nearest market (Chicago, Cleveland, St. Louis, Detroit, or elsewhere), and either sells them at once for the Eastern net price delivered, or five or ten per ct. discount, or pays his debts with them, or buys additional supplies of other books. This has been done repeatedly.

"Fourth. The business heretofore conducted through dealers in the larger cities west and south is being greatly

terfered with by publishers' agents, who are making (and have been for a year past) arrangements with the country dealer to take their respective books and become *local agents*, compensating them by a liberal commission from *production price*. The dealer accepts readily a deposit of this kind, and operates upon the 'capital' thus obtained. He does it in this way. He of course uses other stock, selling books of various publishers. His stock needs replenishing, and he takes an inventory of this 'special deposit'—visits his Chicago or St. Louis bookseller, and offers the special books at five or ten per cent. below regular selling price of the publisher, and buys the books he needs. At the appointed time makes his returns, and orders a new supply to 'complete the introduction.'

"Fifth. This same dealer goes along swimmingly for about a year, and this 'special deposit' is discontinued. He is told that he must now pay usual rates. Mr. dealer gets impatient—posts right off to an agent of a rival series, and says 'I have been agent the past year for Mr. McGuffey's series (for instance), and now we are at variance about the terms. They cut me down in discounts,' etc. 'Now, I am school director in our town, and I *know* what can be done, and will get the train for throwing overboard Mr. McGuffey' (or whatever is used), 'and work for your books. I have a large trade in the neighborhood, and can bring influences to bear that no one else possesses,' etc., etc. He now manoeuvres for just as good an arrangement as he had the year before from another house, and proceeds to operate as before. Now, this is no fancy sketch. It is absolutely true.

"Sixth. Even exchanges, or introductions that are made at a mere nominal price, not half the manufacturing cost. This system, at first, was supported by the argument that by using the books three to five years a profit would accrue to the publisher. Now, however, there seems to be no guarantee that the books thus put in will be retained longer than till the next man comes along with a similar offer. Country Superintendents and Boards of Education, desirous of saving expense to the children, see a good thing in repeating the operation from year to year.

"Seventh. The plan of donating to normal schools does

not now operate to secure the use hereafter of the same series by teachers, who graduate and scatter through the States, more particularly for the reason that every teacher is approached by agents with 'special inducements' to adopt something else. Most teachers are poor in pocket, some are deficient in principle; others, without any sound judgment as to the merits of books, are easily induced to lay aside books that they were educated in at the normal school.

"Eighth. An evil not directly connected with agents or agency business is the constant applications to publishers for donations to form libraries. Every publisher receives from *some individual*, frequently, a nicely-worded letter, praising up the books made by the house, etc., and how long he has used them, and how much he does for them outside, etc., etc.; winding up with a plea of poverty, and how acceptable a few volumes would be, and at the same time represents the great advantage a donation will be to the publisher in the increased sale, etc., etc.

"Ninth. Another dodge is for a very 'enthusiastic admirer' of 'your books' sending for a recent catalogue, afterwards writing and specifying quite a list of books he wishes to examine. His style is so captivating, you at once make up a package, and prepay charges. This man applies to every house in the trade in the same seductive style. His house is soon filled with books, and in due time they are exchanged at the nearest book-store for others or for cash. There are several instances of this sort on record, by *two houses* at least known to the writer.

"Tenth. The tendency of this agency business is corrupting and demoralizing to every class of persons that are parties—first, the agent himself, then the school-teacher, the members of Boards of Education, the scholars themselves, and, finally, the bookseller. The first, *i. e.*, the teacher, is always enlisted by presentation copies for examination, which is well enough, if that was always sufficient; but the watchful eye of the agent detects a hesitancy in acknowledging the superiority of the books presented for introduction, and he soon supplies golden spectacles, in the shape of a Webster's quarto, or some lesser or greater light, to enable the aforesaid teacher to 'see it.'

“Teacher quickly becomes enlightened, and the next opportunity he has to introduce a new series, he knows how to ‘do it.’ To work up a case with the Board of Education frequently requires more seductive offers than handsomely bound books. Their weakness is for greenbacks, and we know of agents of a house that have their pockets full for such emergencies.

“As to the scholars and the booksellers, the operations of the former are small, but they know how to write—many of them—and write a very pretty note for a certain book for examination at the introduction price. . . .

“These things ought not so to be, for surely we are dependent on the large houses for channels through which we may reach all parts of the country with our publications; and it is not honorable or fair to push our operations through territory supplied by them, except at a price made for the quantity bought, and it will not occur when our business is concentrated and conducted wholly at head-quarters, and without the aid of ambitious agents.

“We do not wish to be understood as unqualifiedly condemning the agents and teachers. We believe that, as a rule, they are a superior class, and probably less open to censure than any body of men whose duties are such that they are brought in contact with the same variety of dispositions and subject to like influences.

“The detail of agency operations does not always come to the eye of the principal—being usually overlooked and directed by the junior partners or employees. At the same time important questions affecting agency interests *must* be referred occasionally to the chief, and then he is made familiar with the difficulties that beset a conscientious agent in carrying through an introduction, because of the nature of opposing influences; rendered the more potent and troublesome to overcome in consequence of the unscrupulous propositions from the other side, which are often as monstrous as they are unjust and unexpected.

“All of us are by example familiar with the way ‘jobs’ are ‘put up’ by public men, ostensibly for the public good, and we freely condemn such operations.

“On a small scale we countenance proceedings none the less prejudicial to morals and our own sense of what is honorable and just. This evil has grown to massive proportions during the last few years, and agents with only limited discretionary powers are rapidly becoming proficient as ‘artful dodgers’, and the trifling peccadilloes of municipal and legislative politicians are imitated so nicely that they obtain influence with the powers that be, and hold with money what should be attained by merit only.

“While this agency system exists, every new school-book house that enters the field must fall into line, or he gains no sale for his publications. This will necessitate additional force on the part of many old houses. Expenses augment, and every year the publisher will find his profits diminished thereby.

“With all these arguments and facts before us, the questions for publishers to answer are, Do the results of agency work show absolute gain? Do we find that our books hold their own? If we answer both questions in the affirmative, is the first simply a gain in the number issued and sent out, or do we find a gain in net pecuniary returns? We believe a careful estimate for the year 1869 will show a smaller pecuniary gain, even on a larger issue of books, than during 1868—for expenses have increased, and will continue to grow heavier; and with the suspicion on our minds that *all* our agents cannot be trusted, we think a large increase of profits even does not compensate for the anxiety and worry it brings with it.

“We must also refer to complaints that agents are nuisances—bores; and respectable teachers and members of school boards are heartily sick of seeing a ‘*book agent*.’ The interruptions they experience have become almost constant, and we really believe some books are readily adopted when they are brought to the notice of teachers through any other means than by an agent, which may not have the merit of *his* (the agent’s). The bookselling fraternity are also strongly opposed to the system, and where we are compelled to send these representatives we make but few friends, or only friends in name.”

A CHAPTER ON FIGURES.

ABOUT two years ago, the following arrangement of figures appeared in the *Waverley Magazine*, in which, if we mistake not, it was styled "A Curiosity:"

16	4	1	13
5	7	10	12
11	9	8	6
2	14	15	3

Counting the above upward, across, or from corner to corner, it will be found that the amount in each instance is 34. It is a clever hap-hazard combination of figures without any rule for their formation. The proper arrangement of figures in odd-numbered squares has, however, been long known; they are easily made, and, no matter which way they may be counted, will give the same amount in each column, as may be seen in either of the following squares:

15 EACH WAY.

8	1	6
3	5	7
4	9	2

65 EACH WAY.

17	24	1	8	15
23	5	7	14	16
4	6	13	20	22
10	12	19	21	3
11	18	25	2	9

369 EACH WAY.

47	58	69	80	1	12	23	34	45
57	68	79	9	11	22	33	44	46
67	78	8	10	21	32	43	54	56
77	7	18	20	31	42	53	55	66
6	17	19	30	41	52	63	65	76
16	27	29	40	51	62	64	75	5
26	28	39	50	61	72	74	4	15
36	38	49	60	71	73	3	14	25
37	48	59	70	81	2	13	24	35

175 EACH WAY.

30	39	48	1	10	19	28
38	47	7	9	18	27	29
46	6	8	17	26	35	37
5	14	16	25	34	36	45
13	15	24	33	42	44	4
21	23	32	41	43	3	12
22	31	40	49	2	11	20

To make these squares, we begin by placing No. 1 in the middle place in the top row; we then put No. 2 at the bottom of the next row to the right, and oblique upward to the right with our next figures, until we fill the place in the last perpendicular row, when we carry our next figure to the left-hand place on the horizontal row next above it; again oblique upward to the right, until we reach either the top or a filled place—if to the top, we place our next figure at the foot of the next row to the right, and oblique upward as before to the right; if to a filled place, we put our next number directly under the last one made, and oblique upward to the right, as before, until we come to the top or a filled place, or the last row on the right—if the latter, we go to the left place on the horizontal row next above and so on to the end, when the highest and last number will be found at the foot of the row containing No. 1. When we get to the top place on the right-hand column, we cannot drop to the bottom of the next row to the right, as there is none, and therefore place our next number under the last one made, and then go to the top of the left-hand column.

And now, having shown what has been done in forming these squares, we will give a few of our own thoughts upon the matter, and although offered for a pastime, we have the hope that they will be found worthy of consideration. We have said that the *Waverley* combination was formed without rule. This we repeat; but we have discovered how similar ones may be formed, and how to know the exact number a square—be it odd or even numbered, large or small—should contain when the numbers are added consecutively together as well as the total of each column, horizontal, perpendicular, or diagonal. Thus, to find what the square should contain, we multiply the number of places in the square half the number of places, and to the product add the other half; and to show what each column of the square should contain, we divide the sum of its square by one of its parallel sides, and we have the answer. Thus:

$$3 \times 3 = 9 \times 4\frac{1}{2} + 4\frac{1}{2} = 45 \div 3 = 15.$$

$$4 \times 4 = 16 \times 8 + 8 = 136 \div 4 = 34.$$

$$5 \times 5 = 25 \times 12\frac{1}{2} + 12\frac{1}{2} = 325 \div 5 = 65.$$

$$\begin{aligned}
 6 \times 6 &= 36 \times 18 + 18 = 666 \div 6 = 111. \\
 7 \times 7 &= 49 \times 24\frac{1}{2} + 24\frac{1}{2} = 1,225 \div 7 = 175. \\
 8 \times 8 &= 64 \times 32 + 32 = 2,080 \div 8 = 260. \\
 9 \times 9 &= 81 \times 40\frac{1}{2} + 40\frac{1}{2} = 3,321 \div 9 = 369. \\
 10 \times 10 &= 100 \times 50 + 50 = 5,050 \div 10 = 505. \\
 20 \times 20 &= 400 \times 200 + 200 = 80,200 \div 20 = 4,010. \\
 40 \times 40 &= 1,600 \times 800 + 800 = 1,280,000 \div 40 = 32,000. \\
 80 \times 80 &= 6,400 \times 3,200 + 3,200 = 20,483,200 \div 80 = 256,040.
 \end{aligned}$$

And so on, as far as we may wish to go. The truthfulness of these rules can be easily tested—for, as $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 = 45$, and $45 + 10 + 11 + 12 + 13 + 14 + 15 + 16 = 136$, so $136 + 17 + 18 + 19 + 20 + 21 + 22 + 23 + 24 + 25 = 325$; and so it will be found with all. We will now give a few even-numbered squares, commencing with two of the same number of places as the one in the *Waverley*, each of which shows a different combination:

$4 \times 4 = 16 \times 8 + 8 = 136 \div 4 = 34$, the number in each column.

14	1	7	12
9	4	6	15
8	13	11	2
3	16	10	5

1	15	14	4
7	9	6	12
10	8	11	5
16	■	3	13

With the square of 36 places, we have $6 \times 6 = 36 \times 18 + 18 = 666$, the sum of the square; and this divided by 6—one of the *Parallels*—gives 111 as the sum of each column:

36	2	34	4	5	30
12	26	10	28	29	6
22	24	14	17	16	18
15	13	23	20	21	19
25	11	27	9	8	31
1	35	3	33	32	7

And with the square of 100 places, we get $10 \times 10 = 100 \times 50 + 50 = 5,050 \div 10 = 505$:

100	90	3	7	9	95	5	4	93	99
20	10	82	87	89	16	86	84	13	18
70	80	29	23	22	76	26	28	77	74
40	30	63	67	69	35	65	64	33	39
50	60	48	56	43	■	46	47	■	52
51	41	53	45	58	57	55	54	42	49
61	71	38	34	32	66	36	37	68	62
31	21	72	78	79	25	75	73	24	27
81	91	19	14	12	85	15	17	88	83
1	11	98	94	92	6	96	97	8	2

The above square may be counted in a hundred different ways, and always with the same result. It will also be served that the first and tenth parallels of this square, if added together, make a hundred and one; so also do second and ninth, the third and eighth, the fourth seventh, and the fifth and sixth. A similar arrangement will be observed in the smaller squares; and, as the first last numbers must be added together, the parallels always count one more than the number of places in square.—*Appleton's Journal*.

A FRENCH paper gives the following account of the origin of the expression "to make a complete fiasco." A German one day seeing a glassblower at his occupation, thought nothing could be easier than glassblowing, and that he could soon do it as well as the other. He accordingly commenced operations by blowing vigorously, but could not produce a sort of pear-shaped balloon or little flask (fiasco). The second attempt had a similar result, and so on, until fiasco after fiasco had been made. Hence arose the expression which we not unfrequently have occasion to use in describing the result of our private and public undertakings.

UNIVERSITY EDUCATION IN GERMANY.*

PART FIRST.

WE still remember the emotion with which we first crossed the threshold of one of the great German universities, whither we had gone as a student. It was at Berlin. The University is in the principal quarter of the town, opposite the King's palace, near the statue of Frederick the Great, and beyond that magnificent bridge over the Spree, which is adorned by eight white marble groups representing the poem of human liberty. The university building is unostentatious as becomes the palace of science. It occupies three sides of a grassy courtyard, which is closed in front by an iron fence. On the ground-floor long bare passage-ways, running through the building, lead to the lecture-rooms, whose low and massive doors look like the entrances of monks' cells. On the floor above are the collections and the library. Students come and go with their note-books under their arms; but one never sees here the colored *mütze*, nor the high boots, which, as well as the duel, are still the fashion at the small universities. All is subdued and silent. Before each door a bulletin indicates the times of lectures, of which there are several for nearly every hour in the day. In the thirty-two lecture-rooms more than three hundred courses are given each semester upon the whole circle of the sciences—mathematical, natural, social, and theological. In the presence of this prodigious activity, of which nothing, in Paris even, had given us any idea, our thoughts turned towards France, which in the last century imposed its law upon the whole of learned Europe, and we recalled Goethe more attentive on his death-bed to the great struggles of the Museum and the Institute, than to the political revolutions of Europe. At the time when we were thus helping to bring forward the startling revival of study and science in Germany, but few persons in France had any consciousness of the superiority which in a few years was to be universally recognized even

* Translated from the "Revue des Deux Mondes" for the *Living Age*.

by the Government. Since that time Germany has made still greater progress. Who knows whether we can regain our lost ground without a prodigious movement like that which gave France at one time the Normal School, the Polytechnic School, the Conservatoire des Arts et Métiers, the Bureau of Longitudes, and the Museum? At any rate, it is our duty to investigate the organization of education in Germany in order to understand its spirit, and to appropriate that spirit, if possible, to ourselves. It is gratifying to a nation to see its institutions envied by another, but it is also becoming in it to envy for itself the progress which is accomplished elsewhere; this is the first step towards making like progress at home.

I. In Germany as in France, it is the Faculties who give the higher instruction and confer academical degrees. The analogy between the institutions of the two countries stops there. The fact of the union of the four fundamental Faculties of theology, law, medicine, and philosophy in a single town constitutes a university. There are twenty-six universities in the whole German territory, including the German cantons of Switzerland and the Slavonic dependencies of Austria. Many of the university towns are mere villages, which have succeeded in making themselves a name in the history of human thought. Halle, Göttingen, and Tübingen have been the centres of a considerable intellectual movement. Many of the universities are very old, and it cannot but surprise the observer to see institutions founded in the middle ages still holding such an important position in our time. The fourteenth century saw the foundation of two universities which have always been thronged, those namely of Heidelberg (1346) and Prague (1347). That of Leipsic dates from the beginning of the fifteenth century (1409). The organization, copied at that time from that of the Sorbonne, has not much changed during five centuries, and the same plan has served for the modern universities of Berlin (1809) and of Bonn (1818). It is still considered excellent, and with reason. Each of these universities, which are bound together by no political ties, has its own history; they have had their crises, their periods of splendor, their time of decay. The University of Vienna, after the Re

formation, became almost Protestant. One fact indicates clearly the spirit of that time; from 1576 to 1589 no degrees of doctor of Theology were given, and in 1626 it had not less than twenty-eight non-Catholic professors. Then the University passed for a century into the hands of the Jesuits, and when it was taken from them in 1735 it was that it might become an instrument of the Government in the hands of Charles the Sixth and his successors. It possessed the censorship, and was closed to Jews. This state of things lasted till 1848, and not till then did that University begin to re-assume its proper position in Germany. Now it has a small Faculty of Evangelic Theology of six professors. Often the universities have been transplanted or absorbed in others. The ancient University of Ingolstadt, founded in 1472, was transferred at a later period to Landshut, and became in 1826 the brilliant University of Munich. That of Freiburg in Breisgau emigrated to Constanzt during the French occupation, from 1679 to 1697. At about the same time the University of Strasburg, in conformity with the fourth article of the Convention of the 3rd of October, 1681, came under the protectorate of the French crown. Strasburg, in actual possession of all its liberties, continued during the eighteenth century to be a German city. Its university, then more prosperous than ever, attracted students from the other side of the Rhine. Goethe and Prince Metternich both studied at Strasburg. The university was suppressed in 1793. This was without doubt a measure to be regretted, but when we consider how much the Republic did for education in France, we can hardly reproach it with this error. The enthusiasm for learning which it had inspired during its existence would have produced marvellous results, if Napoleon had not devised a plan of reducing the higher education to a rigidly organized system by means of the Faculties.

Each University is commonly designated by the name of the town in which it is placed, but it takes also a title in memory of the Sovereign who founded or restored it. Thus Berlin contains the Frederick William University, and Freiburg the Albertine. All the Universities regard themselves as members of one family—whether in Prussia, Aus-

tria, Switzerland, or Bohemia. This fraternity extends without limit. The Universities of Russia and Holland borrow professors from Germany. A great step in civilization will be made when our institutions are so modified to permit a similar exchange of scientific men with neighboring nations. The German Universities, in other respects absolutely independent of one another, are established on the same plan, and submitted to the same *régime*. The details of their regulation, the amount of property at their disposal, and their relations to their Governments present some variations; but the basis of the system is everywhere the same. If unity exists anywhere in Germany, it is there. In that so-long-divided country, the universities have perhaps had more effect than diplomacy in effacing the traces of the middle-ages whence they sprang, and in laying the foundations of the unity of Germany, which they have always recognized in principle.

It is a serious error to imagine that the German universities are independent of the Governments. In fact, the State grants subsidies to them; and appoints the professors, though no doubt there are universities rich enough to dispense with such assistance; as, for example, the little Prussian university of Greifswald, which has a revenue of 75,000 thalers, and receives only 1,200 from the Government. The funds of the university, when there are any, are the property of the corporation, and cannot be alienated by the State. If they are large enough, the university is not under the power of the Administration, which cannot even move from one town to another. At Freiburg, the principal resource of the university is a municipal grant, which would be annulled in case of transplantation. These are exceptional conditions; most of the universities receive subsidies from the State, which are very considerable in comparison with the budgets of the little countries which vote them. The University of Leipsic has a yearly revenue of 120,000 thalers; Saxony adds to this sum 53,500 thalers. The University of Berlin has a revenue of only 72 thalers and receives 180,000 thalers from the Government. During the year 1861 Prussia expended for its seven universities the sum of 530,860 thalers, or in round numbers 400,000 dollars.

in gold, to which were added the private revenues of the universities themselves. In all, Prussia, with a population of 18,500,000, expended in the year 1861 500,000 dollars for higher education. In this total the tuition fees are not included; they are always paid directly to the professor, and sometimes constitute his entire support.

According to the terms of the Prussian law, "the universities are privileged corporations, composed of the whole body of the professors and matriculated students and of the employés and their inferiors in its administration; that is to say, all the persons attached to the universities enjoy the academic privileges. The very fencing, swimming, and riding masters, the beadle, the janitor, the jailor, and the lamplighter enjoy these advantages, and see their names after those of the professors on the official list of the members of the corporation. As for the students, the mere entering of their names confers upon them citizenship in the university. They are subject from that moment, like the employés and assistants, to a special jurisdiction, the representative of which, in Prussia at least, is styled the University Judge. Generally he is a magistrate of the town. He has the rank of professor, and has a position on the left of the rector. He takes cognizance of all offences against discipline and misdemeanors committed by the students and minor officials, even outside the limits of the University, and can condemn them to confinement in the academic prison.

As to the professors, they govern themselves, decide all questions relating to instruction, and maintain their privileges scrupulously intact. Doubtless these are less than they formerly were, having been diminished by the successive expansions of the common law; but as they are still a guarantee of the independence of the governing board, that is enough to make them precious. The professors are only subject to themselves and to the heads whom they elect. Each year the Faculty appoints its dean, and the four Faculties, in assembly, proceed to the election of a rector and Senate. This last body consists of the rector, his predecessor, the four deans, and six members chosen among the professors. It represents the highest expression of academic power, and its judgment is final. It is charged with admin-

istering the affairs of the corporation, and defending when necessary, against the invasion of power. It is still prerogative of the University that every public document published by the Senate and bearing the signature of the Rector, is exempt from the censorship in the country where that exists. These small assemblies, proud of their independence, strong in their rights, have sometimes uttered to their Sovereigns noble words of liberty, which have had the more weight from the fact that in most of the States some professors are also counsellors of the Government. Hence arises a high title to public esteem for all those engaged in instruction. In 1862 the Chamber of Deputies at Berlin had been dissolved by the King. The Minister von der Heydt was called upon to manage the election, and to secure the defeat of the Liberal party. The head of the Cabinet took hold of the work in good earnest. Circulars were addressed to all the corporate bodies of the State calling on them to put forth all their power for the triumph of the royal policy in the approaching elections. The University of Berlin received one of these circulars on the 22nd of March, through the Minister of Education. We well remember the sensation produced in the University and among the public by this affair. In spite of the extreme moderation of the Minister's letter, the Rector and Senate replied on the 7th of April, in terms which it might be well for us to consider in France: "It is not one of our privileges," said the Senate, "to examine the circular of the Minister of the Interior in so far as it is addressed to his own functionaries; still less does it become us to raise the question of how far the servants of an Administration can be bound by an order from their chief in the exercise of common political right, and how far such a pressure may be regarded as advantageous in the coming election. We wish to confine ourselves simply to maintaining the constitutional rights of the University corporation, the defence of which is confided to us, and the personal independence of each one of its members. Therefore, our rights and our duty demand that we here declare that we cannot hold him in Excellency the Minister of Education justified in interfering in any way with the members of the academic body in the

exercise of the political franchise, as his Excellency the Minister of the Interior has done with the officials of his department." The Universities of Bonn and Breslau replied in very nearly the same terms to this unfortunate circular.

It is with justice that the German universities have been likened to small republics. In fact, their internal organization is as democratic as possible. The functions of dean and rector cannot be perpetuated in the hands of a single individual. They can never be given for two years in succession to the same professor. There are universities where each professor is dean in his turn, and in turn takes part in the academic government. If he present an excuse, it is considered, and may be rejected. Thanks to this elective constitution, which is capable of modification according to the necessities and claims of progress, the German universities have attained prosperity through causes directly the contrary of those which, after half a century, are killing the rigidly organized Faculties of France.

GEORGE FOUCHET.

PRIMARY READING.

AMONG the several methods of teaching children to read, the *word method* seems to have attained much popularity. By this plan an attempt is made to teach the child to recognize in print those words whose meaning and use he has previously learned in conversation, without any regard to the characters or letters of which they are composed.

Its advocates argue that as children learn the concrete before the abstract, the whole before its parts, the printed words should be learned before the letters which make them up.

That things, actions, qualities, etc., in the material world are, to some extent, so learned is not denied; but with regard to the words that represent them, we think the case is quite different. Even spoken words are learned principally in elementary parts. The child begins to talk by imperfectly lisping the simplest sounds and most elementary

words of the language. Perhaps the child first learns to utter the Italian *a*, because this is the element most naturally produced by simply opening the mouth and emitting sound. Afterwards the most easily articulated consonant sounds are combined with this power of *a*, and such words as *ma* and *pa*, *mamma* and *papa* are heard.

But as the child learns rapidly, since he learns naturally, at this period of his existence, the principal vowels and consonants are soon acquired; and such words as *me*, *see*, *go*, *eye*, *cat*, *dog*, etc., are distinctly uttered. In a short time, the easiest combinations of consonants, such as in *bread*, *grass*, *stand*, etc., are mastered by the little learner. And so the process continues, until the more complicated and difficult words can be uttered with ease.

If this theory is correct, it is evident that the parts or elements of spoken language are unconsciously learned before the whole or words can be spoken. Elements are learned before words, and words before sentences can be formed.

But more especially is this true of written language. The child, having previously learned the elements of spoken language, has only to learn the characters that represent these elements, acquire facility in combining them so as to form words, and in recognizing these combinations when formed.

The elements are few, and if we had a character for each, and but one, as in phonetic print, the task of learning to read would be simple and easy. If this were the case, suppose the word method would have few advocates.

Though the orthography of our language has many irregularities, it would not seem to justify a system of teaching so much at variance with that which would be so clearly indicated were orthography regular.

The writer concludes, from the above and other considerations not presented, that the *word method* is not the best plan of teaching children to read. He may, in a subsequent article, offer some further thoughts on this subject and indicate more clearly what he regards as the true method of teaching this important branch of primary education.

JOHN D. JOHNSON, *Yadkinville, N. C.*

THE REFORMATION.

THE vigorous writer of the *Literary Notes* in the BURLINGTON FREE PRESS tersely discusses the anticipated reformation in the School-Book business. He evidently understands his subject. We give his Notes entire: A much needed reform has at last been effected in the School-Book business, and one in which teachers and school officers—and we think publishers also—have occasion to rejoice. For many years now the competition among the makers and venders of this class of books has been anything but healthy and legitimate; and not seldom quite dishonorable. An army of book-agents has been going to and fro through the land, button-holing and bribing teachers and superintendents, and boring school boards, until they had become both a bother and a nuisance. They invariably had the best book extant, which they desired to introduce on whatever terms they could make. If they could not get full price, they would take less, or would make an even exchange for whatever other text-book they chanced to find in use, in hope that future sales would make ample compensation. The effect of this, often unprincipled, rivalry is greatly demoralizing on both instructors and School-officers. Some publishers, whose names might be given, will not hesitate to make a free expenditure of money, when such argument was found to be most convincing. If the supply of a whole State was the prize contended for, the contest waxed warm and vigorous; and some of the competitors were far from scrupulous as to the means to be employed. Some of our School-book publishers, however, are bound to say, have never resorted to other than open and honorable methods of pushing their wares.

Of course this agent system has been largely responsible for the frequent changes in text-books. The agents were generally smart, shrewd business men, voluble and well-versed in regard to the merits of their own books and the weak points in those of rival firms; and so were able to talk over a good many teachers and boards to their own views. For recommendations, they could show them by the hundred. A presentation copy of any school-book was almost

sure to be paid for by a good, or ambiguous, word, which would do to print. Even if the entire letter was strongly condemnatory, a sentence could be culled here, and a clause there, which, if inserted in an advertisement, would make for the book. Some men grew to be cautious how they made any acknowledgment whatever of books from publishers. Then, as a last resort, there was always the green-back argument to fall back upon, though it frequently took the more innocent form of presents of books, etc.

At a Convention held in New York City, on the 16th of last March, an association of School-book publishers was organized, with definite articles and rules; in accordance with which the whole business was at once transformed. Hereafter no School-books are to be introduced into schools of any sort at less than half the retail prices. No books are to be sent out on sale or commission. No allowance will be made for old books. Ninety days only will be granted for making and completing introductions. No money, nor anything that can be converted into cash, no maps or charts or school furniture, nor any undue means whatsoever, shall be used to secure the introduction of books. New editions are to be furnished on the same terms as new books. After the first of July next all agents now in the field shall be withdrawn, and no others shall be employed. School-books will hereafter be brought before the public, as other books are, by means of circulars and the press. We congratulate everybody concerned—publishers, teachers, school-boards, and the public, on the change. Some three hundred and fifty smart, irrepressible, “gentlemanly” agents, however, will have to take up some other line of business for a livelihood.

As for the advertising of rival school-book publishers, perhaps it is too much to expect that it will hereafter conform to the canons of civility and good taste, as the Convention laid down no rules under that head. One firm in its last *Bulletin* has a “Dismal Tragedy,” meant to be funny, in which, under the scarcely disguised names of Bigblow, Squirl, Lambhurt, Ben Sun, and Scribbler & Co., it pitches into its competitors in a way doubtless meant to be very effective. But we would rather stand before such a gun than behind it.

**RELATIONS OF TEACHERS TO COMMITTEES
AND THE COMMUNITY.**

ARE teachers professional agents, or simply servants? Do they owe a professional service, or the service of the day laborer? May they at the stroke of the clock, close the door, turn the key, and shut out or shut in all school care and school thought, as the laborer drops the pick at the sound of the whistle? The teacher claims that he stands in *loco parentis*, and so much must be left to his judgment, to his discretion, to his sense of duty and the fitness of things, that I do not see how he can claim, or committees grant less. But who thinks of limiting a mother's efforts for her children by the hour, or of estimating their value in dollars and cents? Does not the teacher, straining every nerve for the good of his pupil, belong to the same class of laborers as the physician sitting anxiously by the bed-side of his patient, or the pastor watching "for souls as one that must give an account?" If so, his service is professional service, and is no more to be measured by the six hours a day for five days in a week, than is the pastor's by three hours a day for one day in the week. If, however, teachers are day laborers, they have a right to open offices, make agencies, go into the book business, etc., and when school is out hie them to their several places, and carry on a legitimate and thriving business. But should they do this, would not the community feel that the teacher did not give himself to his proper work; that there would be a divided interest, and that in that division the school would suffer? Moreover, the "Rules and Regulations" seem to recognize something more than day's labor, when they say of the meetings of the Teachers' Association held Saturday afternoons, that "teachers are required to attend the meetings, and contribute severally their share in rendering the exercises interesting and useful." And is not the rule and is not the community right in this respect? Are not the care of a school, the carrying of forty or fifty pupils upon the heart, the taxing of the brain for their im-

provement, the devising of means for their control enough? Are not the wear and tear of nerve and soul that come from the school-room all that any one ought to subject himself to? If the teacher renders a professional service, he should be paid for such service. If the whole man is engrossed, the whole man should be paid for. He should be so paid that he will not feel compelled or at liberty to engage in other business. If he gives himself to serve the community, to meet their demands, he should be recognized as one devoting himself to the good of that community. But if the teacher is such an agent, duties are his as well as privileges. He must devote himself to the school. He is not at liberty to select his home or his boarding-place with reference to church or lectures or concerts, to lessons in Music or French or German, but with reference to school. If duties to his school require him to be here or there, to do this or that, he may not plead that he boards down town or up town, and so can not do the work. He may not engage in anything that will "counterwork in himself or another" the work he is called to do.

If the teachers' meetings are not interesting, he is to "contribute his share" to make them so. If he say that he cannot learn anything at the meeting, I will only say that that is just the complaint that a scholar sometimes makes of his teacher, and in such cases the fault is invariably placed to the account of the scholar, and not of the school. It may be asked, what shall a teacher do who is so poorly paid that he cannot give all the time demanded by his school. If a sense of the insufficient pay so presses upon him that he will not do the work, or if his relations and obligations are such that he cannot, then he should resign. He who stays in a position consciously withholding efforts demanded by the position, cannot be true to himself or his calling; and the community who will suffer an earnest, faithful teacher to render unrequited service, further than in the nature of the case much of his service must be unrequited, is not true to itself or to human rights. "The laborer is worthy of his hire."

E. A. HUBBARD.

COURTESIES EXCHANGED.

THE *Michigan Teacher* introduces a recent number in the following happy style:

"The EDUCATIONAL MONTHLY, of New York, is the Pharisee among educational journals. According to its own modest account, it is the only journal of its kind which dares to express its honest convictions of books and men. It plumes itself especially upon its independent criticisms. Other journals fear to excite the wrath of publishers by stating unpleasant facts about worthless books. Not so the MONTHLY. Its moral integrity is so exalted, its convictions of duty so earnest, that it *must* speak the truth though the heavens fall, or publishers discontinue their advertisements.

"The shining virtues of the MONTHLY may be more truly appreciated by recollecting the chief purpose of its existence. It was begun, and is continued, chiefly to advertise certain wares which its proprietors wish to sell. It is never so 'independent' as when exposing the utter badness of a book which promises to rival some of its own superior publications, and never so 'gushing' as when expatiating upon the merits of some indispensable article which it will send to any address on receipt of the advertised price."

"A few months ago *Worman's German Grammar* received a savage criticism. The review was so manifestly malicious that the reader might guess the work to possess real merits, even if he had not read the commendations of those who are qualified to speak on such a subject.

"Our Pharisee has now gained fresh notoriety by publishing a most shameful review of Prof. EVANS' *Abriss*. The standing of Prof. EVANS as to moral uprightness and literary ability would have caused any one but the MONTHLY to be fully assured of the facts in the case before committing what might prove a cruel wrong. Prof. EVANS' vindication is complete, and convicts his critic both of malice and of ignorance.

"Hereafter when the MONTHLY is affected with critical spasms it will not be difficult to ascertain the disturbing causes."

Happily for the AMERICAN EDUCATIONAL MONTHLY, a very respectable portion of the American press, and hosts of appreciative readers, have substantially complimented it for speaking frankly about school-books, even "though publishers may withdraw their advertisements." But, why should that fact excite the lively jealousy of the *Michigan Teacher*? We have not monopolized the field. We have not done a hundreth part of the work which ought to be done.

The *Michigan Teacher* is in error about our claiming that the MONTHLY is "the only journal which dares express its honest convictions of books and men." Outspoken editors are rare, but their number is constantly increasing. We hope sometime to find among them our courteous friend of the *Michigan Teacher*. If he owes his readers anything he owes them the *truth* about books. It is not, after all, so very "cruel and savage" to tell the truth about school-books. Publishers, with only rare exceptions, do not "withdraw their advertisements." They usually have sense enough to advertise in the journals which have the best circulation.

"The chief purpose of the existence" of the AMERICAN EDUCATIONAL MONTHLY seems perfectly familiar to the Michigan editor. Can he as fluently explain "the chief purpose" of the *Michigan Teacher's* existence? Is it to exhort teachers and school officers "to sympathize" with its efforts to exist; "to subscribe," as a matter of "duty," and "to pay up?" Or, is it "to puff" every book, good, bad and indifferent, which may be sent to its happy editor?

All who know anything of this MONTHLY know that the body of the magazine is never corrupted with editorial advertisements or "puffs" of books or of anything which the publishers of the MONTHLY, or any of its advertisers may have to sell. Can the *M. T.* say as much for itself? [Page 55 of the same number which contains the foregoing paragraphs will illustrate].

The well informed editor of the *Michigan Teacher* has not taken care to assure himself that the publishers of the MONTHLY do not happen to publish any books which have "rivals." It is very easy for him to discover that this MONTHLY has "chiefly" "exposed the utter badness" of books which are in no degree opposed to publications which concern us.

But, suppose it were otherwise—what then? When a book is bad, what matters it by whom its errors are exposed?

The Michigan editor is rather late in stirring up the carcass of the Worman case. Does he not know that Worman's publishers have acknowledged the justice of our criticisms,

by not daring to accept our challenge of last year to submit Prof. Fischer's charges to a committee of three persons—two of whom had an interest in sustaining Worman against his reviewer? We refer this chivalrous editor to the MONTHLY for December, 1869. Worman's publishers should give him a liberal advertising patronage for ten years.

Master *M. T.* shows his lack of information in alluding to our exposure of Prof. Evans. His "standing" "as to moral uprightness and literary ability" is all very well; but, what is *reputation* without a solid foundation of CHARACTER? If our youthful friend had read the NATION'S able summing up of the Evans case he might have prevented so huge an exhibition of his folly and ignorance.

Finally, would this valiant editor have troubled himself to give the MONTHLY such a "first class notice," if its publishers had listened to his last "gushing" appeal to advertise in his columns and pay in the "indispensable articles" alluded to?

ACCORDING to the most recent investigations and estimates, the population of the whole earth is calculated at 1,228,000,000. Of these 360 millions belong to the Caucasian race, 556 millions to the Mongolic, 190 millions to the Ethiopian, 176 millions to the Malagan, and one million to the Indo-American race. The number of the spoken languages is 3,642; that of the different religious denominations about 1,000. The yearly mortality is $33\frac{1}{2}$ millions, so that in every second of time sixty-two human beings die.

A WISCONSIN paper publishes an appeal by a young lady for a situation as teacher, in which she says: "I was educated in one of our leading female seminaries, and have my certificates, and so feel it my duty to teach somewhere, and if you can assist me, please write and let me know, and I will get ready at once."

*MRS. EMMA WILLARD.*

THE founder of the famous Troy Female Seminary died April 15th, at the ripe age of eighty-three years. She was born in the town of Berlin, Connecticut, February 23, 1787. Her family were among the earliest settlers in Connecticut. Her father was SAMUEL HART, a man of prominence in his day, both in Church and State, of extensive reading and information, and liberal views in politics and religion. From him his daughter inherited many of those intellectual qualities which made her one of the most successful and popular of American female educators.

Her first experience in teaching was in 1804, when, at the age of seventeen, she took charge of a children's school in her native town. Her predecessor had been lax in discipline, and the children were accustomed to do just as they pleased. First she tried remonstrance, telling them that

was there to do them good—to make them fine boys girls—but her appeals fell on listless ears. The rod next tried, and before the day wore away the g teacher had nearly worn herself out in the punishment which she was compelled to bestow. But the lesson well learned, and the whippings never had to be red to again. The school soon became a model—its station extended, people came from a distance to inspect and by their commendation cheered the heart of the g teacher.

The next two or three years of her life were spent in singing and study. In 1807 she became assistant in the academy at Westfield, Massachusetts, and soon afterward in charge of a female seminary at Middlebury, Vermont. She was married to Dr. JOHN WILLARD. The union proved a happy one. Dr. WILLARD was a man of liberal education, and fully sympathized with his accomplished wife in her literary labors and scientific studies.

In consequence of financial losses, Mrs. WILLARD, with her husband's consent, opened a boarding-school in Middlebury, and in 1816 she published an address to the Legislature, proposing a plan for improving female education. In the spring of 1819 she removed her school to Waterford, Conn., and two years afterward again removed it permanently to Troy. The Common Council of that city appropriated \$4,000 toward maintaining the school.

The career of this seminary need not be sketched here. Nearly ten thousand young women have been educated in its walls. They came from every section of the country, and, wherever they went, they carried with them grateful remembrances of their friend and instructor. Her husband died only a short time after the establishment of the school at Troy, and from that time until 1846, when she relinquished the charge to her son and his wife, the entire responsibility of carrying on the business rested on herself. In the spring of the last-mentioned year she made the tour of the Western and Southern States, accompanied by a son. Through her journey of more than 8,000 miles, embracing the principal cities of most of the States west and south of New York, she was everywhere received by her

former pupils with respect and affection. At seminaries for the education of girls she was welcomed as one of the pioneers in this department of literary training.

She went to Europe in the autumn of 1830, residing for a time in Paris. She then visited England and Scotland. After her return she published a volume of travels—the avails of which she applied to the cause of Female Education in Greece.

She was the author of several Educational works, some of which have had a large sale. In 1854 she again visited Europe to attend the World Educational Convention in London. Her life was consecrated to the education and advancement of woman, and her services will be held in grateful remembrance. The excellent portrait accompanying this sketch was taken in advanced years. [For its use we are indebted to Messrs. Harper & Brothers.]

THIS anecdote is as good as it is old: A college-professor encouraged his geology-class to collect specimens, and one day they deposited a piece of brick, streaked and stained with their collection, thinking to impose upon the doctor. Taking up the specimens, the professor remarked: "This is a piece of baryta from the Cheshire mines;" holding up another, "This is a piece of feldspar from the Portland quarries; and "this," coming to the brick, "is a piece of impudence from some member of this class."

IN the Autumn of 1848, when the Cass fever was high in politics, a graduate of Bowdoin College, on his way to teach school in the South, had occasion to cross over a river in a ferry-boat. An old gentleman, afterward ascertained to be a director of a bank, and largely possessed of lands and "chattels" in the neighborhood, also crossed over at the same time, and eyed the Northerner with no little interest. "I say, stranger, where are you from?" "From Maine." "Maine! Maine! Let me see. That's where Cass lives a'n't it?" "No, sir; Cass lives in Michigan." "Michigan! Oh! yes. Well, I thought it was close by there somewhere."

EDUCATIONAL INTELLIGENCE.

STATE SCHOOL OFFICERS.

STATE.	TITLE.	NAME.	POST OFFICE.
Ala.	Supt. Pub. Instruc.	N. B. Cloud.	Montgomery.
Ark.	" " Schools	Thomas Smith.	Little Rock.
Cal.	" " Instruc.	O. P. Fitzgerald.	San Francisco.
Col.	Sec. Bd. Education.	B. G. Northrop.	New Haven.
Conn.	Supt. Pub. Instruc.	C. Thurston Chase.	Jacksonville.
Del.	School Com'r.	R. M. Manly.	Atlanta.
Fla.	Supt. Pub. Instruc.	Newton Bateman.	Springfield.
Ill.	" " "	Barnabas O. Hobbs.	Indianapolis.
Ind.	" " "	A. S. Kissell.	Des Moines.
Iowa.	" " "	P. McVicar.	Topeka.
Kent.	" " "	Z. F. Smith.	Eminence.
La.	" " "	Thos. W. Conway.	New Orleans.
Me.	" Com. Schools.	Warren Johnson.	Topsham.
Mass.	Prin. State Normal Sch.	M. A. Newell.	Baltimore.
Mich.	Sec. Bd. Education.	Joseph White.	Boston.
Minn.	Supt. Public Instruction.	Oramel Hosford.	Lansing.
Mo.	" " "	Mark H. Dunnell.	St. Paul.
Neb.	" Education.	Henry R. Pease.	Jackson.
N.J.	" Pub. Schools.	T. A. Parker.	Jefferson City.
N.Y.	" " Instruc.	S. D. Beals.	Lincoln.
Pa.	" " "	A. N. Fisher.	Carson City.
R.I.	" Com. Schools.	Amos Hadley.	Concord.
S.C.	" Pub. Instruc.	E. A. Apgar.	Trenton.
Tenn.	" " "	Abram B. Weaver.	Albany.
Tex.	" " "	S. S. Ashley.	Wilmington.
Vt.	Com'r Com. Schools.	W. D. Henkle.	Columbus.
Wash.	Supt. Pub. Instruc.	Geo. L. Wood.	Salem.
Wis.	" Com. Schools.	J. P. Wickersham.	Millersville.
Wyo.	Com'r Pub. "	T. W. Bicknell.	Providence.
Del.	Supt. " Instruc.	J. K. Jillson.	Camden.
Ala.	Supt. Pub. Instruc.	E. M. Wheelock.	Austin.
Conn.	" " "	A. E. Rankin.	St. Johnsbury.
Fla.	" " "	Rev. W. H. Ruffner.	Richmond.
Ill.	Supt. Free Schools.	A. D. Williams.	Charleston.
Ind.	" Pub. Instruc.	A. J. Craig.	Madison.

TERRITORIAL SCHOOL OFFICERS.

Idaho.	Supt. Public Instruc.	Columbus Nuckolls.	Central City.
Mont.	" " "	Jas. S. Foster.	Yankton.
Neb.	" " "	Daniel Crane.	Boise City.
Utah.	" " "	T. J. Campbell.	Virginia City.
Wash.	Supt. Inst'c. Cherokee Na.	Spencer S. Stevens.	Tahlequah.

RHODE ISLAND.—The twenty-fifth annual report on public schools in Rhode Island contains much interesting information, and is rather more readable than most docu-

ments of its kind. From it, we learn that the number of school districts in the State was 421; the number of school teachers, summer 650, an increase over the preceding year of 115; number of male teachers, summer 62, winter 173; number of female teachers, summer 549, winter 500. The number of children registered in the public schools in the summer was 26,540 in the winter, 29,477. The average number of weeks in school year was 33. The whole amount of town appropriations for the public schools in 1859 was \$88,922 89, and in 1869 it was \$244,845 86, showing an increase of \$155,922 97, an amount nearly double the total appropriation of 1859, add to this sum the increased appropriation of the State, \$40,000, and we find the total increase in ten years to be \$195,922 97. Referring to this, the Commissioner says: "While I wish to congratulate the good people of the State that they have been led to do thus much, and while I still wish to encourage larger efforts in this noble work, my own impressions are that we are not using these funds in the wisest manner, and that here, more than in any other department, *much of the money of the State is wasted, and will continue to be until we establish our school system on a broader basis, with a wiser policy and more vigorous measures for its execution.*" He then proceeds to point out in what respects the present system may be improved; recommends that a law be adopted which shall require each school district to have a free school for not less than 35 weeks in each year, instead of four months as at present, and earnestly advocates the immediate establishment of a State Normal School at Providence.

SPRINGFIELD, MASS.—The report of the School Committee for the year 1869, shows a steady progress, and a reasonably satisfactory state of things. The number of pupils in the schools some part of the year, ending July 1869, is 4,617; as 33 of these are under five, and 240 over fifteen years of age, it appears that 4,354 persons of school age were found in the schools during the year; or 198 more than the number as reported by the Assessors, May 1, 1869. The average attendance is 3,123, which is 75 per cent. of the *number returned*; but, by another method of comparison, only about 68 per cent. of the *whole number in school*. The

cost of instruction per scholar seems very small. The amount paid for teachers' salaries (\$51,865 63) is divided by the whole number in school, and thus found, the cost per scholar is \$11 23. The *entire* cost, however, of the schools for the year was \$76,303 40, making the cost per scholar \$16 52. The number of schools under the control of the Committee is 26; number of teachers employed 100; highest salary paid \$2,300, lowest \$300. Though the pressure felt for more school room has been greatly relieved by the erection of a new building designed to accommodate 445 pupils, yet there is still a lack of accommodations, especially in the high school.

CHARLESTON, S. C.—The Commissioners of Free Schools report that for the year ending Sept. 30, 1869, enrolled in the public schools, 5,252 children, of whom 2,081 are colored. The increase over the preceding year, in the number of white pupils, is 399; in the number of colored pupils 428. The average number belonging to the schools is 2,905; the average attendance, 2,396. It is worthy of notice that while the percentage of attendance to average number belonging, has decreased 1 per cent. in the white schools, it has increased 5 per cent. in the colored. The number of teachers employed is 66, an increase of 6. The total current expenses were \$36,230 25, including amount paid for teachers' salaries, \$30,868. The average cost per pupil, based on whole number enrolled, was \$6 90; on average number belonging, \$12 47; on average attendance, \$14 72. Notwithstanding the failure of the Legislature to take action upon the subject of education, and the embarrassed condition of the finances, the efforts of the Commissioners have been crowned with abundant success. Each year, since the re-opening of the public schools, has witnessed an advance in their grade. The ground lost has been pretty well recovered, and the time has at length arrived when a course of study can be definitely fixed for the guidance of teachers. During the past year, the Board has received from the Peabody Educational Fund, \$1,500, and a tender of \$1,000 from the same fund, has been made and accepted for the present year. There has been a very

decided improvement in the condition of the colored school. The Superintendent doubts if there can be found a school devoted to the education of colored persons, which has been more successfully conducted. While there has been a decrease in the whole expenditure of more than \$5,000, the report shows that good progress has been made, and that there has been an increase in the proficiency and advancement of the schools.

LOUISIANA STATE SEMINARY.—The report of Col. D. F. Boyd, Superintendent of this institution, shows that during the year 1869, the seminary experienced both good and bad fortune. It was overcoming its pecuniary difficulties, extending its course of study, and attracting a large number of cadets, when, on the 15th of October, the main college building was entirely destroyed by fire. The Board of Supervisors acted promptly; for, two weeks after the destruction of the seminary building, the school was reopened at Baton Rouge, where it is at present. The number of instructors is 15; number of cadets, 196, of whom 113 are beneficiaries; number of graduates, 1869, 8.

DAVIDSON COLLEGE, N. C.—The faculty consists of 7 members. Rev. G. Wilson McPhail, D. D., L. L. D., is President, and W. G. Richardson, M. A., Prof. Ancient and Modern Languages. The number of students is 125, of whom 12 take the scientific course. The whole expense for the term of three months is estimated at \$75 00 or \$80 00.

IOWA STATE UNIVERSITY.—This University, located at Iowa City, receives its endowment from the General and State Governments, and is under State control. Its advantages are for all, without distinction. Four departments are in operation: the collegiate, normal, law, and medical. Rev. James Black, D. D., is President of the University. Twenty-two instructors are employed in the several departments. The whole number of students is 416, of whom 391 are in the collegiate department, and 102 in the introductory class.

CURRENT PUBLICATIONS.

PROF. WHITNEY'S COMPENDIOUS GERMAN GRAMMAR.¹

NONE of the different grammars of the German language, lately published in this country, fully satisfies, in our opinion, the requirements of the American student. Some of them, as we have lately seen, are mere money speculations, written by literary impostors with no other merit than the influence of their publishers. Of these we do not speak here. But even those Grammars that stand on their own merits have serious defects, which we may range under two heads: too great an explicitness in unimportant matters on the one side, and incompleteness and error in the most important subjects on the other. We may almost say that our American students have acquired a respectable knowledge of German, not through, but in spite of the existing grammars. We, therefore, hailed with delight the announcement of Messrs. Leypoldt & Holt, the diligent publishers of works of foreign literature, that no less a scholar than Prof. Whitney, of Yale College, had undertaken to write a German Grammar and a German Reader. The former has been in the hands of the public for several months, while of the Reader only the text has been published.

The grammar, indeed, shows almost on every page the skillful hand of its author. But we must reluctantly confess that the author has not solved the problem of a German Grammar, meeting the requirements of the American student. The great problem, to be solved by a grammar of any foreign idiom consists of two points. It must lead the student by the shortest possible road to reading the authors, and it must contain a key to all grammatical difficulties that the student meets in reading them. The author, fully aware that he had to solve this problem, has tried to satisfy both requisites without keeping them separated. He advises the student to learn, when first going over the grammar, only the largest type, preparatory to reading. But we do not believe this to be feasible. The subjects printed in large type (pica), are mere fragments, generally unconnected with each other, being for the most part abstract, without illustration and but rarely with any practical tendency. They contain for a very large part *definitions* of a kind that the

¹ A COMPENDIOUS GERMAN GRAMMAR. By William D. Whitney. New York: Leypoldt & Holt. 1869.

student must be entirely familiar with, from his English studies, as :

Nouns, adjectives and pronouns are declined, verbs conjugate, adverbs, etc., uninflected; interjections are a class by themselves, not entering, etc. Declension is variation of nouns, adjectives and pronouns for number, case and gender. There are two numbers, singular and plural. In the main the gender of German nouns must be learned outright by experience; but the following practical rules will be found of value [they follow in *small print*]. The principal classes of pronouns are personal, possessive, demonstrative, interrogative, relative, indefinite¹ [the special rules being with a few unimportant exceptions all in small print]. Conjugation is variation of verbs for mood, tense, number and persons. Only verbs are conjugated; hence the subject of conjugation is coincident with that of verbal inflection. Each tense is declined in two numbers (all paradigms and special rules being in small print). The passive voice is a derivative conjugation of a transitive verb, in which that person or thing which in the simple conjugation is the object of the transitive action, becomes a subject of that action. A reflexive verb is one that represents the action as exerted by the subject upon itself. An impersonal verb is one by means of which the action implied, etc., etc.²

We must confess that we cannot see how the road of the student to practical reading could be shortened in the least by any of these rules. We should have printed either all of them in small type, or rather left them out entirely. To illustrate these and similar rules, the author has prepared twenty German exercises for translating into English, each consisting of about ten short sentences, but none for translating English into German. All of them would fill four or five pages, the vocabulary, in which every word of them is translated, containing seven pages. These exercises are so meagre that they cannot give even a superficial introduction into reading, and we are sorry to say the author has not been careful enough to keep out those mistakes, which, very naturally, will slip from the pen of one writing in a foreign idiom. We give of these a few specimens :

In den Munden der Hunde sind Zähne, p. 28 (the word Mund in common language neither forms a plural nor can it be used of the mouths of beasts). — Die Frau sah den Ochsen ihres Gatten in Gefahr von einem Bären, p. 31 (Gefahr von we cannot say in German). — Dieser Pole ist ein Advokat; sein Vetter ist ein Soldat, ib. (instead of ist Advokat etc.) — Man thut neuen Wein in neue Fässer, p. 43 (instead of zieht . . . auf.) — Dieser neue Wein hält gut (inst. of hält sich gut), p. 44. — Alle Kriege sind große Unglücke (Unglück forms no plural, except in special connections), ib. — Meine Frau und ich, mit uns fern

¹ As if these were *not* personal.

² In his special rules he calls them a separate class of words, being more or less "related" with the pronouns, and differing from *ordinary* nouns and adjectives in derivation, or in office, or in both — as if this was a peculiarity of the *German* language.

³ Sometimes very queer mistakes occur in these rules, as : the nominative, genitive and dative (instead of *accusative*) are always alike in the plural (p. 23).

rn, kommen (inst. of kommen mit unsern Kindern), p. 59. — Ich weiß weder für Bücher sie waren (instead of es waren), ib. — Das 4te Brett trägt die Bücher (this would mean: the fourth shelf carries Spanish books), p. 72. Der 1te; den 1626ten (instead of der erste; den 1626sten), ib. — Gebt mir was ebt, und ich werde zufrieden (inst. of was ihr wollt, und ich bin zufrieden), — Was er gebe wissen wir nicht (inst. of was er giebt, or was er geben. The subjunctive is entirely out of place.), ib. — Ich würde mit ihm sein (inst. of bei ihm; mit ihm gegangen, gekommen, but bei ihm gewesen), ib. — Er war vom Dache gefallen; die Kleine sieht es, hebt ihn (inst. of hebt ihn auf); jetzt liegt er auf dem Bette, p. 122. — Die Würme (inst. of Würmer; it is provincial) kriechen auf der Erde, ib. — Du solltest dich schämen (inst. test dich schämen sollen), als die That gethan wurde, p. 181. — Auf der Fläche of Oberfläche) der Erde leben die Nationen etc., p. 81.

Considering the treatise as a book of reference, we have acknowledged that the author has carefully tried to present the facts of the language, according to what he considered as good authorities. To original research the author lays himself no claim, although he is very far from being, even approaching plagiarism. But we believe nobody can write a good German grammar, founded on the authority of other grammarians alone. Their errors are often too conflicting and contradictory, and at least on those subjects in which the authorities are at variance, an independent and careful investigation of the errors should form the only source of the rules. This the author has not always observed, and he frequently has founded his statements on erroneous opinions of certain German grammarians, as we shall see hereafter. That he indeed frequently compared the German *authors*, is evident on every page of his work, and the examples that he presents as illustrations of his rules are almost all directly taken from German authors. They do not extend, however, beyond those few passages that stand in his text; nor are they always well chosen. Often he has torn parts of a sentence from their connection, so that they are sometimes quite unintelligible. Many are taken from minor compositions, for instance from Chamisso's translation of one of the Edda-songs, and from Raumer's history of Hohenstaufen, which is not considered as a model of good style. But nevertheless we consider his examples, so far as they go, one of the very best features of his work, in that they are all translated into English in a manner that hardly be surpassed. They are, with only one or two exceptions, real patterns of correct and admirable translation from the German language, and would be for this reason alone of a very high value for the student, even if the rest of his book should be less serviceable.

But there are several peculiarities in the book against which, we are afraid, all its excellent qualities will not form a sufficient offset. Its chief defect we think to be the

author's METHOD, against which (however many reasons he may have had for adopting it) grave objections from a practical point of view must be raised. His SYSTEM lacks evidently all philosophical foundation. The whole grammar is not divided into etymology and syntax, as all other grammars¹ do, but mechanically into "parts of speech," and the syntactical rules generally form a mere appendix to the etymological apparatus. From this complete ignoring of the most important of all grammatical distinctions, several inconveniences have arisen. Thus, for instance, the government of verbs has been treated as an appendix of "declension," before the verb itself and its conjugation is even touched, so that the student can only half understand those sentences which the author presents as an illustration of his rules. Many rules, in every part of the work, are founded on the division of sentences into "adjective, substantive and adverbial clauses," and could not be understood at all without at least a superficial acquaintance with the nature of these clauses. But the author treats this subject only at the close of the whole work as an appendix to the "arrangement of words," and under the same heading with it. It is evident that such a treatment must seriously embarrass the progress of the student undertaking to study the language systematically with the author's grammar for a guide. But it impairs also the usefulness of the work, considering it as a mere book of *reference*. For since there is no *syntactical* heading to assign to the different syntactical subjects, the author has, not unfrequently, entirely left out important rules, or has been compelled to tack them upon etymological subjects, and thus either has treated them incompletely, or, on the contrary, repeated the same rules at different places of the book. Thus, having no general chapter on "grammatical agreement," he was under the necessity of dispersing the rules referring to it over many parts of his grammar, where for want of an index it will be very difficult to find them; but some of the rules, belonging to the subject, cannot be found at all, as for instance the agreement of personal predicative or appositive nouns with their subjects in GENDER (as in the phrase *Vernunft, der Gründerin des Weltgebäudes*, reason the founder of the universe). Having no chapter on gender in its general relations, he was compelled to tack on the indefinite pronoun *Alles* the remarkable use of the neuter gender of adjectives, referring to PERSONS. He says (p. 69):

¹ Grammars according to the Ollendorf model we do not consider as real grammars. Only in books of this class the ignoring of the dividing line between etymology and syntax is not only excusable but necessary. But the author's book has a scope widely different from works of that category.

"The neuter singular *Alles*, like the corresponding case of other pronominal words, as *jeder*, is employed in an indefinite way of persons, meaning *every one*; thus, *alles nähert sich einander*, all draw near to one another."

But the range of this use of neuter adjectives, meaning persons, is considerably wider, for it is neither confined to indefinites, nor to the meaning "every one," so that for an explanation of the neuter gender in the following passages, the author's grammar would be searched in vain:¹ *Ein geliebtes Abgeschiedenes*. Göthe Wahlb. p. 154. — *Wenn wir Theleute uns sprechen wollten, so zog bald das eine, bald das andere den Vorhang*. Göthe Wette p. 149. — *Unser ein's hat wenig Zeit, zu weinen*. Göthe Stella p. 313. — *Für einen Dritten ist wohl auch noch Platz, und auch für ein Viertes*. Göthe Wahlb. p. 4.

While embarrassments of this kind arise from a want of philosophical system, the author is far too philosophical, or rather *abstract*, in the single rules by which this system is carried out. Here his method is a mixture of facts and reasoning. Discussion and reasoning are at their place in strictly literary works, for instance in the author's "Study of Language," but they are generally out of place in a practical grammar. Here we want a plain statement of the rules, unincumbered by discussion, especially such as is based on mere conjectures of the author, or on doubtful opinions of other writers. When a grammarian substitutes for plain rules, discussions of principles to which the rules are appended as mere accessories, both the student and teacher will be compelled to view the facts of the language through the colored glasses of the writer, not mentioning the serious practical disadvantage that the student's attention must be necessarily diverted from the main point. We shall illustrate this by an example:

Grammarians generally express the rule about the declension of adjectives somewhat in this style: "Adjectives are inflected after the weak (second) declension, when preceded by the definite article or a demonstrative, otherwise they take the strong inflection." This very plain rule is thus enlarged by the author (p. 39, § 121), being printed in pica:

"The adjective, now, takes the more distinctive endings of the first declension, unless preceded by a limiting word of a higher order (an article, pronoun or pronominal adjective: see 123) which itself has those endings [here follow the examples]; or, in other words, a pronominal limiting word before the adjective, if it have itself the more distinctive adjective ending characteristic of the case and gender of the qualified noun, takes that ending away from the adjective, reducing

¹ It is quite remarkable that the author, while explaining this special use of *Alles*, omits to make the student acquainted with its general and common signification, namely *everything*.

the latter from the first to the second declension: the distinctive ending does not need to be, and is not, repeated upon both words."

Here not only is a simple and plain rule unduly extended beyond its real limits, but it is also saddled with a theory that is only half true.¹ Granting, however, that every word of the rule were correct, the real rule is obscured instead of being illustrated by theoretical discussion, so that the student will recognize it only with difficulty. Rules of a similar character appear in all parts of the work. In this respect the author's great command of the English language has almost become a fault. As by his smooth and elegant style he bribes, as it were, our judgment, so he has deceived himself into the belief that what reads so well must be well conceived and practically adapted to a beginner's comprehension.

While thus the author is generally rather liberal with his explanations, he sometimes withholds them just where both the teacher and student should expect them first. This is especially the case in regard to a very strange innovation, introduced by the author, which consists in his producing all pronominal adjectives in a mutilated form, inasmuch as he strips them of their nominative endings, although these words are never found in the form he quotes them. So he speaks of the adjectives *etlich* and *einig* (page 67), meaning the indefinite adjectives *etlicher* and *einiger* (*einig* being a descriptive adjective, denoting "*harmonious*"). Page 59 he makes us acquainted with the adjectives *dieß* and *jen* (instead of *dießer* and *jener*), which he says must be distinguished from *jed*. Page 68 the adjectives *jed*, *jeglich*, *jedwed* are introduced, or rather invented, and page 69 the word *ander*; page 72 the numerals *zweit*, *neunt*, *sechzehnt*, *dritt*. At the same place he says that *acht* forms *acht*—irregularly instead of *achtt*, which sounds rather startling. But occasionally the correct forms are adopted, for on page 38 the adjectives *jeder* and *jener* are mentioned. Page 62 we read of an adjective "*selb*", but on the same page he calls this adjective "*selber*", all of which oddities must necessarily confuse and bewilder the student. If the author from some, to us inexplicable, reasons was determined to substitute the roots of words in lieu of their existing forms, we do not see why he was not more consistent, and spoke of a definite article *d* (instead of *der*), or of the verbs *schlag*, *geb*, *sei*, etc., instead of *schlagen*, *geben*, *sein*, in the same way as a certain Latin gram-

¹ That the "distinctive endings" need not be repeated may or may not be correct; but it is certain that they are repeated after the greater part of adjectives with distinctive endings, even after such as the author strangely calls "words of higher order."

marian is wont to substitute for the verbs *amo, lego*, etc., and for the adjectives *bonus, malus*, etc., the nicely sounding monosyllables *am, leg, bon, and mal*.

Connected with this dogmatic tendency of the grammar is the evident unwillingness of the author to reckon with the practical needs of the beginner. He very frequently leaves rules, which, without practical illustration, it is almost impossible to understand, entirely destitute of examples; and this extends even to the rules themselves. For in such rules as refer to a certain number of words of certain classes, he almost invariably withholds from the student the knowledge of the very words for which the rules are given. Instead of these he applies a peculiar counting or measuring process. Thus he says:

To this class belong about thirty-five monosyllabic feminines . . . , with the feminines formed by the suffixes *niß* (about a dozen in number), and *sal* (two or three), page 26. About thirty adjectives are followed by a genitive. Many of them [*not* enumerated adjectives] are also construed with prepositions, and a few even govern an accusative, when used with the verbs *sein* and *werden*,² page 77. Twenty-five transitive verbs govern a genitive³ in addition to their direct object, the accusative, page 77.

Here the author enumerates none of the *German* verbs, but, strangely, mentions some of their *English* equivalents (to remove, deprive, accuse, convict, admonish, assure, and "the like!"), almost every one of which has several German equivalents, *not* governing a genitive. And again:

About forty reflexive verbs⁴ "admit" a genitive in addition to their reflexive object; four or five transitive impersonal (*sic*) verbs *may* govern a genitive,⁵ page 78. About thirty verbs⁶ may take a genitive only after the manner of a direct object, page 78.

He takes care to add here that many of these (not enumerated) verbs may take an accusative instead of the genitive, or a noun governed by a preposition.

Quite frequently the author mingles with his grammatical rules historical remarks and even discussions on the Old-German and Gothic languages. Perhaps the space devoted to these digressions might have been better applied by filling up the grammatical balance-sheets just mentioned; for a student of comparative and historical philology will hardly look for information into a "compendious German Grammar." Still, we would not grudge the author these oppor-

¹ We noticed only one single list of words, and that an incomplete one, in the whole book. ² Of what possible use can all these distinctions be to the student, if he does not know the words, which are thus theoretically distinguished? ³ Becker gives a list of 35. ⁴ Becker gives a list of 40.—
⁵ Becker gives 8. ⁶ Becker gives 39.

tunities of indulging in what is considered his specialty, if he had confined his statements to the undoubted and universally accepted results of that science. But he has quite frequently introduced as unquestioned facts mere opinions of his own, or of other writers, in order to prove by them certain peculiar views entertained by himself on the existing state of the language. In this respect his enthusiasm for historical philology has evidently carried him too far. For if it does not generally hurt the student to learn occasional things unconnected with his proper study (*superflua enim non nocent*), it will certainly hurt him in more than one sense if the facts by which his judgment on important subjects is forestalled, and on which he relies as on certainties are nothing but *ex parte* statements of the author.

We beg to follow up this point a little more in detail even if for no other reason than to show how our hobby often bias our judgment, and impair our usefulness for everyday work.

Pages 21-23 the declension of the nouns is divided into the first and the second. The first declension is, according to the author, that which forms the genitive in *s* or *es* (§ 69) the second declension, which forms the genitive in *n* or *a*. In a remark (page 23) he adds:

What are here called the first and second declensions are often styled (after Grimm's example) the strong and weak declensions. A historically suitable appellation would be vowel-declension and consonant-declension, since the first mode of declension properly belongs to themes originally ending in a vowel (though the plural ending comes from themes in *s*);¹ the second, to those ending in *n*; other consonant-endings, with their peculiarity of declension, have disappeared.

These statements are not quite accurate. For in the earliest period of the language, in which still appeared the original vowel and consonant terminations of substantive stems, only one mode of inflection for *all* nouns was in existence, namely the one that formed the genitive by the ending *s*. The other mode of declension appeared only after all distinction between vowel and consonant stems had been effaced. Hence to call the author's "first declension" vowel-declension would be of all others the most unsuitable from an historical point of view. The author's further remark, that the "first and second declensions" are "often" styled the strong and weak declensions, is likewise inaccurate. They are *often*, but *always* called so. It is true that *Schleicher*, from

¹ This is very doubtful. It is a mere hypothesis of *Schleicher*, who must acknowledge that *s*-stems have already disappeared in the Gothic language, and that they were there treated as vowel-stems.

whom the author has partly taken his remarks, mentioned above, finds fault with these terms; however, his protest has been ignored by all German grammarians and lexicographers. But the same *Schleicher* declares the appellations "first and second declensions" the worst of all (page 243).¹ We, on our part, consider mere names as quite indifferent, but from this very reason must object to changing without very urgent reasons grammatical terms that are in the mouths of all—a habit which, with some grammarians, has become almost a mania², and which has created a good deal of confusion and perplexity.

While the author at least *mentions* the terms "strong and weak" in their application to DECLENSION, he does not even so much as *mention* them in regard to CONJUGATION, although they are just as universally received in the latter as in the former. Indeed, there are but few grammatical terms on record more felicitously devised than these.³ For "weak conjugation" means an inflection made by the external help of an ally, an auxiliary (the equivalent of "to do"); "strong" is an inflection that needs no such external help, but is made by the inflectional power of the root alone.⁴ The author himself is of the opinion that this very fact constitutes the difference between both modes of inflection, and would certainly not have been reproached with inconsistency if he had submitted to a universally accepted name, exactly expressing the nature of the thing which it is meant to indicate. But he saw fit to revive the "historical" names "old and new conjugations," although they have been long dropped by the German grammarians, who had invented them. He supports these terms by the following digression (page 102):

The Old and New Conjugations correspond to what are generally called in English the "Irregular" and "Regular" verbs. The former,

¹ *Die deutsche Sprache*, 2 edit.

² We are very far from reproaching the author with such a "habit." His new terms are very few, and some of them admirably chosen; as, for instance, his term "*transposed order*" for the order of words in the dependent sentence. The more it is a pity that he revived the terms "old and new inflection."

³ The founder of modern grammatical science has proposed but a very few new terms in grammar, but these few are matchless, and have been adopted, as it were, by acclamation. As: *Lautverschiebung*, *Lautabstufung*, *Anlaut*, *Auslaut*, *Ablaut*, *Umlaut*, *Starke und Schwache Biegung*. We cannot afford to spare any of them now.

⁴ *Schleicher* objects to these terms, because he thinks that they represent grammatical ideas under the form of a mere "image." But our very best grammatical terms do the same; as, for instance, "reflexive," "impersonal," "gender," "voice," etc. How, indeed, *could* anything but an image represent profound grammatical theories in a single expression? Therefore, the Germans have "tabled" *Schleicher's* protest.

as the name implies, is the more primitive method of inflection¹; preterit was originally a reduplicated tense, like the Greek and Latin perfects (as *dedōka*, *tetigi*); and in the oldest German language many verbs have retained the reduplication (as *haihalt* "held," from *hallan*, "hold;" *saislep* "slept," from *slepan*, "sleep"). By phonetic corruption and abbreviation, however, this reduplication led to alteration of the radical vowel, and then was itself dropped, in a great majority of verbs, producing phenomena of conjugation so various that there was left no prevailing and guiding analogy which to inflect the new derivative verbs that were brought in as needed², to supplement the old resources of expression. Hence the need of a new method of conjugation, which was obtained by adding the preterit of the verb *do* (*did*) to the theme³ of conjugation. The preterit-ending *te* of the New conjugation is the relic of this auxiliary (as, in English, *I loved* stands for an original *I love-did*). See the author's "Language and the Study of Language," pages 60, 80.

Here the following facts are presented as unquestionable results of historical grammar: 1st. That in the first period all (primitive) verbs were reduplicated. 2nd. That in the second period this reduplication caused (the author does not say in what way) a phonetic corruption of the root-vowel. 3rd. That in the third period the reduplication was dropped, by which fact that conjugation of the primitive verbs arose which we see in historical times. 4th. That in the fourth period derivative verbs were first introduced, for the conjugation of which new means had to be provided, since the old conjugation had "run wild," as it were. We shall not here discuss all these different assumptions, but must remark that the historical development, which the author states, as if he had been himself present, is utterly unwarranted by the results of our science. Derivative verbs may be easily recognized by their vowels of derivation (*i*, *ô*, *ai*), which they preserve in the infinitive and present. These vowels correspond to all the cognate branches of the Indo-Germanic family, Gothic verbs in *i* corresponding for instance to the Latin fourth, third in *o* to the Latin first, and those in *ai* (*ê*) to the Latin second conjugation. Hence derivative verbs, and consequently a new conjugation by auxiliary endings, must have been

1 If the author by the terms "old and new" meant to allude to the periods in which each of the two methods of conjugation was first devised, he seems to have taken the expression "new" in a rather unusual meaning of the word, this "new conjugation" being unquestionably anterior to the Tower of Babel. We would suggest, rather, some geological terms: say, "miocene and pliocene conjugations," which, aside from other advantages, might perhaps designate "the time" a little more accurately.—2 This preterit was not *haihalt*, but *haihald*; and comes not from *hallan*, but *haldan*.—3 This preterit was *saislep*.—4 This reminds us of the author's peculiar theory of the origin of language in his "Study of Language," a theory which he has likewise revived, after it has been thoroughly refuted and forgotten by the Germans. According to this theory, language is a product of "convention," invented for having a means of communication (as if such a convention could have been possible without language). The material of our languages is not so poor as to be brought into use only "when needed." In all languages there is an original luxury and exuberance of expression which, like that of Nature, goes far beyond the needs of the moment. If the words of a language were always brought in "as needed," as if manufactured to order, we should not be witnesses of the peculiar fact that languages are struggling during centuries for expressions which they need and cannot find.—5 The author means its ancient equivalent.—6 It was rather added to the old conjugation of the Infinitive.

terior to the first separation of languages; while the transition period from reduplication to what the author calls phonetic corruption (or to his "old conjugation") must have happened thousands of years later, since in the fourth century of our era still twenty-five verbs reduplicated in Gothic, mostly without phonetic corruption, while the very auxiliary (the equivalent of the verb "to do"), by which the "new conjugation" was formed, had long been lost; for this verb is not found at all in our Gothic monuments. It follows from this: 1st. That the conjugation of derivative verbs by means of an auxiliary cannot have been an *external* necessity, as the author assumes; for we cannot see why the Goth should not have formed the preterit *saisalbo* of the derivative *salbon*, in the same way as he formed the preterit *saisalt* of the primitive *saltan*. 2nd. That if the author's assumption is correct, that the "old conjugation" is a mere result of phonetic corruption, his "new conjugation" must be several thousand years older than his old.¹

Page 57, § 158, Rem., the author says:

Opinions differ as to whether the possessive is derived from the *genitive* (of the personal pronoun), or the *genitive* from the *possessive*. Probably the latter opinion is correct; the history of the language shows that a *genitive* is often, or usually, a *stereotyped and invariable case of an adjective of relation*.

This remark is very strange. There is, first, no difference of opinion among grammarians on the subject. All agree that the possessive adjective is derived from the *genitive*. Our own opinion is, that neither the *genitive* of the personal pronoun is derived from the *possessive*, nor the *possessive* derived from the *genitive*, but that both were originally used in the same form for both offices—as it is, indeed, the case in modern German. But if one of the two forms should have been a derivative, it was unquestionably the *possessive adjective*, and not the *genitive*. The reason by which the author supports his contrary opinion (we have italicized it in his statement above) is, as it stands, perfectly unintelligible. But what he really meant may be inferred from a remark in his "Study of Language," where he says (p. 272): *The genitive affix is very likely to have been at the first, like many genitive affixes of later date in the history of the Indo-European languages, one properly forming a derivative adjective.* But we have not the remotest proof that such was ever the

¹ The fact is, that this assumption of "phonetic corruption" is not at all proved, and that very probably both conjugations, that by vowel changes and that by an agglutinated auxiliary, existed already in the primitive period in which our Indo-Germanic forefathers formed still one nation. But from this very reason it seems to us improper to base grammatical terms in a modern language on facts which have happened in the earliest dawn of man's existence, and which are visible to us only in their dimmest outlines.

case. We are, indeed, curious to learn what genitive affix of later date could be proved, or have ever been proved, to be originally "derivative adjectives." We know a number of instances in which perhaps the opposite case is true. Thus the Latin *paternus* has the force of a genitive; the German adjectives in *-ig* have the force of genitives (*der göthighe Wert* has the force of *das Wert Göthe's*), but nobody has ever conceived the idea that the genitive *patris* is derived from *paternus*, or the genitive *Göthe's* from the adjective *göthig*. But granting it to be true, that the genitive ending (say *asya* in the Vedas) was originally some problematic form-adjective, what would this prove for the author's opinion? For neither the possessive adjective, nor the genitive of the personal pronoun has such an ending; and the author certainly does not pretend that the possessive adjective (which is entirely different according to the different persons and numbers) has been this mysterious "adjective of relation" from which all genitive endings derive their origin? And were it so, even then it would not follow that this "adjective" in the personal pronoun produced not only the ending, but also the root itself.

There are several other historical digressions in the author's grammar, in which we have noticed similar inaccuracies; for instance, when he says (p. 115) that in the verb „that“ (did) is preserved a *solitary* relic of the original reduplication of the preterit. There are several other relics of this reduplication, as in *hielt* (formerly *heihalt*, *heialt*, *hialt*, *stieß*, *rief*, *schied* and many other verbs. That „that“ itself is all a relic of reduplication is not beyond all doubt. Jacob Grimm himself denies it (*Geschichte der deutschen Sprache*, p. 613) and considers "*dad*" as the original root of the word. But it is time to end this discussion, and to turn to those points in the author's grammar which by some will be considered more objectionable than any we have hitherto noticed.

We are afraid that this will be especially the case in regard to many of the author's statements concerning the grammatical facts of the language. Many of these are evidently erroneous, others are inaccurately presented, and not a few are so unclearly expressed that it will be difficult to understand them, even for an advanced scholar.

We shall not dwell on the numerous errors in the chapter on pronunciation; as, for instance, on his inaccurate statements about the pronunciation of short *i*, *ä*, *e*, *g*, *r*, *ʃ* (the pronunciation of which, like the English *z*, the author declares to be "provincial"—a very strange error), *v*, *z*, *th* and *ng*. His pronunciation of double consonants must be peculiar indeed; for he cautions the student against pronouncing *tt* in *Mittag* like *tt* in *Mitte*, against pronouncing *ll* in *vielleicht* like *l*

in Welle, & in Putzuder like & in Hitze, nn in dennoch like nn in Henne. There is no difference whatever in the pronunciation of the mentioned double consonants in these different words.

Page 38, he says that the adjectives of material in en and ern, as bleiern, are not used predicatively. This is not so. Compare Göthe Natürliche Tochter 5, 6: Ist denn der Himmel ehern über mir? So Glasbrenner (Neue Gedichte p. 59): Ach wie ist dein Flug so bleiern, Armes Baiern, armes Baiern, etc. Hagedorn (Gedichte 3, p. 100): Wie eisern sind doch ohne dich die Zeiten. Klopstock (Messias 16, 161) Und eisern wird des Sterbenden Seele; and other innumerable passages.

Page 47: "*Superlatives ending in the suffix isth form no superlative in est (it).*" Heyse says in this respect that such superlatives are better avoided on account of harshness, and advises to use instead of them the circumlocution with am meisten; but Professor Whitney improves on Heyse—he denies their existence. However, they are used frequently, and by the very best authors; and their harshness is not greater than that of the superlatives of rasch, frisch etc., or than combinations like ist's, or words like Arzt. Compare Lessing Em. Gal.: Sie sagte die melancholischsten Dinge (where Heyse's remedy, „Die am meisten melancholischen Dinge, would be ridiculous). So Göthe, Dichtung und Wahrheit 2, 79: Der tüchtigste von Allen.—Büchner Kraft u. Stoff p. 152: Die komischsten Dinge. Honegger in „Blätter der Gegenwart (März 1870 p. 348): im absolutistischsten Staate Europa's.

Page 54: "*Such words as Weib, which are neuter, though designating female persons, take a pronoun, referring to them usually in the grammatical gender.* Examples are wanting. This is hardly correct. The grammatical gender forms here the rule, and the natural gender the exception. See Schiller Botiv-Tafeln p. 472: Des Weibes Urtheil ist seine Liebe; wo es nicht liebt, hat schon gerichtet das Weib.

Page 57: "*The genitive of the (personal) pronoun is never used to limit a noun, but for it is substituted a possessive in the form of an adjective, qualifying the noun.* Thus: die Arme des Mannes the man's arms; but seine Arme, his arms, never die Arme seiner the arms of him."

This is a mistake. In a number of instances the genitive of the pronoun *must* be used, and the possessive would be faulty. Thus in the partitive construction, and when the personal pronoun is combined with another qualifying word; also, in certain relations in connection with the indefinite article, as: Die Verbesserung und Veredelung unserer selbst, Göthe Dichtung u. Wahrh. 6, 32. — So sind ihrer beiden Eindrücke wahr, Herder Gespräche. — Unser aller Unglück. Ib. — Durch ein frühzeitiges Ausgehen meiner, Göthe Dicht. u. Wahr. 5, 237. But

even when the genitive of the personal pronoun cannot be used, it is by no means always the possessive, but frequently the genitive of a demonstrative (*dessen, desselben* etc) or a prepositional object (as *Das Gegentheil von mir. Göthe*) which takes its place.—*Concluded next month.*

GUSTAVUS FISCHER.

THE main body of the "Encyclopædia of Biblical, Theological, and Ecclesiastical Literature"²—a most important contribution to religious literature—was prepared before the first page was put in type. The separate articles now require only to be revised, to add the results of fresh researches and discoveries in scholarship, as the several volumes go to press. In this labor Dr. Strong has the assistance of many able and accomplished scholars, belonging to different denominations. Every care is taken to secure the utmost thoroughness and accuracy on every page of the work. The third volume exhausts the letter G. About three volumes more will be required to complete the alphabet. The whole work, thus comprised within six or seven convenient volumes, will form the most important and compact library of reference in the English language for the student of the Bible, in accuracy of scholarship, comprehensiveness of plan, and fullness of detail and illustration, far surpassing every former work of the kind ever attempted in Europe or America.

THE LAWS OF DISCURSIVE THOUGHT: being a text-book on formal Logic. By JAMES McCOSH, LL.D. New York: Robert Carter Brothers.

SYNCHRONOLOGY of the Principal Events in Sacred and Profane History, from the Creation of Man to the Present Time. It is compiled from the most authentic sources, including the following standard works: "The Chronology and History of the World," by Dr. Blair; Archbishop Usher's "Annales Veteris et Novi Testamenti"; Haydn's "Dictionary of Dates," etc., etc. Boston: S. Hawes, Cornhill.

THE SUBLIME IN NATURE: Compiled from the descriptions of travelers and celebrated writers. By FERDINAND DE LANOYE. With large additions, very fully illustrated. New York: C. Scribner & Co.

WONDERS OF GLASS-MAKING in All Ages. By A. SAUZAY. Sixty-three illustrations. New York: Charles Scribner & Company.

SELF-HELP: With illustrations of character, conduct, and perseverance. By SAMUEL SMILES. 442 pages. New York: Harper & Brothers.

² "Cyclopædia of Biblical, Theological, and Ecclesiastical Literature." Vol. III.—E, F, G. 1,048 pages. New York: Harper & Brothers.

THE BAZAR BOOK OF DECORUM: The Care of the Person, Manners, Etiquette, and Ceremonials. 278 pages. New York: Harper & Brothers.

BENHAM'S VOW. By AMELIA B. EDWARDS. Illustrated. 178 pages, paper covers, price 75c. New York: Harper & Brothers.

MR. BROWN'S SCHOOL-DAYS. By an Old Boy. New Edition. With illustrations by Arthur Hughes and Sidney Prior Hall. Paper, 50c. New York: Harper & Brothers.

GERMAN PRIMER, being an Introduction to First Steps in German. By J. TH. PREU. Finely illustrated. New York: G. P. Putnam & Sons.

THE STORY OF THE PUBLIC SCHOOL SOCIETY of the City of New York, with Portraits of the Presidents of the Society. By WM. WOOD BOURNE. 768 pages. New York: Wm. Wood & Co.

THE BIBLE IN THE PUBLIC SCHOOLS. Arguments in the Case of *D. Minor et al* versus the Board of Education of the City of Cincinnati *et al* Superior Court of Cincinnati. With the opinions and decision of the Court. 420 pages. Cincinnati: Robert Clarke & Co.

LIBRARY OF EDUCATION, Vol. V. "The Bible in the Public Schools," the opinions of individuals and of the Press, with Judicial decisions. 214 pages, paper covers, price 25c.

Some of the above books we expect to review at our first opportunity.

Publishers who send books for notice are specially requested to send prices, for the benefit of our readers.

SCIENTIFIC.

THE INFLUENCE OF RAILROADS UPON THE WEATHER.—It seems that the Pacific Railroad is working a change in the climate of the West. Instead of continuous droughts all along the railroad, rain falls in refreshing abundance. This result has been remarked in other sections of the West. In Central Ohio, for example, indeed, the climate has been revolutionized since iron rails have been laid a network over that region. Instead of the destructive droughts formerly suffered there, for some four or five years there has been rain in abundance, even more than enough to satisfy the wishes of the farmers. This change is thought to be the result of an equilibrium produced in the electrical currents, inducing a uniform distribution of the rain. It is a fact within the observation of all

who remember anti-railroad times, that we have now few or no such thunderstorms; as we formerly had in New England. The iron rails which touch and cross each other in every direction serve as conductors and equalizers of the electric currents, and so prevent the terrible explosions which used to terrify us in former years. The telegraphic wires which accompany the iron rails everywhere also act an important part in diffusing electricity equally through the atmosphere, thus preventing the occurrence of severe storms.

THE RISE OF THE COAST OF NORWAY.—Sir Charles Lyell, great geologist, is remarkable for the reckless eagerness with which he adopts anything that may serve to prop up the theory of an enormous antiquity of the human race. Among his arguments is one based on the rise of the coast of Norway. It is well known that the coasts of Scandinavia have a series of elevated beaches which show that the sea once stood several hundred feet higher than now, and that the land has therefore risen that amount since the drift period. In some way Sir Charles and others got the idea that this rise was a slow, steady and uniform progress of about two and a half feet in a century, and from this he calculates that the rise of the coast, which has all been during the present geological era, has occupied at least 240,000 years, and consequently that man has lived on the earth about that period. Prof. Kjerulf, of Christiania, who is making the Government geological survey of the coast, and has carefully examined the raised beaches and terraces, declares the whole theory to be utterly baseless. In the first place, he says the uppermost limit of the sea action is only one-tenth as high as Lyell states, and consequently that this single correction would cut down his figures from 240,000 to 24,000 years. Secondly, he proves that the coast has not risen by constant slow motion, but by a series of sudden elevations, separated by periods of perfect rest; and, consequently, that all calculations based on a supposed uniform rate are worthless, and the total time spent in the elevation may have been very short. This is shown by the abrupt edges of the terraces, rising like stairs, and separated by level areas. Finally, he says the idea that the coast is now rising is entirely erroneous, this being a stationary period; and such a supposition being one of those unaccountable notions which, being once stated, are handed down by the mere authority of a great name.

A VERY curious correspondence was read recently in the Missouri Legislature: One Dr. Logan sent to Prof. Swallow, of the Mining Bureau, something which the professor pronounced "a fragment of calcareous tufa." "The cellular structure," added the professor, "produced by the water standing in the cell." Whereupon the wag doctor responds that the *tufa* is "a piece of maple sugar, to which the ants had found access." The feelings of the professor (who seems to have an appropriate name), upon receiving this explanation, may be more easily imagined than described.



AMERICAN EDUCATIONAL MONTHLY.

JULY, 1870

UNIVERSITY EDUCATION IN GERMANY.

PART SECOND.

THE corps of instruction of a German University consists of four classes of teachers having very distinct rights, namely, ordinary professors, professors extraordinary, *privat-docenten*, who may be compared to tutors, and, finally, decidedly below the others, the teachers of languages and polite accomplishments. These last have not the degree of doctor, and are hardly distinguishable from the employés of the faculty. They teach all the modern languages, sometimes even those of the East, music, singing, riding, dancing, fencing, swimming, gymnastics, stenography, and writing. These teachers are not merely under the patronage of the university. Their teaching is supervised by the Senate; and their prices are sometimes fixed by a tariff, some even receiving a slight salary.

The ordinary professors form the faculty. The Dean as well as the Rector are always chosen from among them, and they alone are members of the Senate. They are never numerous. The largest faculties of philosophy, as those of Berlin, Vienna, and Breslau, have not more than from twenty-five to twenty-eight of them; a small number, when one considers that in the faculties of philosophy instruction

is given in all the subjects of human knowledge, except in theology, law and medicine. Their number depends upon the wealth and popularity of the university, and in the small faculties is so insignificant as to be insufficient, and indeed almost absurd. At Jena, the medical faculty contains only five professors; the law faculty at Giessen only four. These professors represent as it were the instruction of the faculty reduced to its meagrest limits, and scarcely sufficient for the academic demands; but they are always supported by larger numbers of extraordinary professors and of *privat-docenten*, who come in to enlarge and complete the scheme of studies. The ordinary professors are appointed by the Sovereign from a list presented by the faculty. The formalities are nearly the same in all the German States. The vacancy of the chair is publicly announced through the newspapers, and any one who has received the degree of doctor can become a candidate by presenting an application to the faculty. The latter in its turn is not obliged to choose from among these candidates; it makes out its own list in perfect freedom at a special meeting, in which only the ordinary professors take part. This list contains generally three names; but when the faculty deems proper, when it wishes to bestow an especial mark of esteem on any candidate he is nominated alone. This honor is customary when the candidate is already ordinary professor in another faculty. The Rector transmits the list to the Minister, and he presents it to the Sovereign, without being at liberty to make any alteration in it. This privilege which the university has of communicating to the ruler of the State the expression of its choice, without limitation from any intermediate authority, is one of its oldest prerogatives, and one of those which it guards with the greatest jealousy. There is no example, even in Austria, of an appointment made by the Sovereign outside of the list of the faculty. There have been certain cases of the refusal of the appointment for political reasons, and under such circumstances the place has remained vacant until matters were reconciled. In such cases the Government imposes a sort of veto; but it would never occur to it to substitute its own candidate for that of the corporation. It sometimes happens also that it complies

ith the public sentiment, which has been disregarded by the professors but affirmed by the students. The latter, being themselves members of the corporation can, in fact, under certain circumstances, interfere directly. When they think they have a serious reason for not approving the voice which has been made, they have the right to make known to the Sovereign their unheeded desires. One of the best known professors of the Vienna medical faculty owed his chain solely to a demonstration of this sort.

Every ordinary professor, although he receives a salary from the Government, is exempt by the mere fact of his appointment from the censorship of the Administration. In Germany the Government has never conceived the ingenious idea, which exists in France, of considering the professors as servants of the State, and their stipend as a generous gift which secures gratitude or extinguishes hostility. The eminent Virchow, one of the most noted leaders of the opposition in Prussia, a professor of the University of Berlin, receives 1,200 or 1,500 thalers from the Treasury without thereby being prevented from attacking the Government in the Parliament, in his lectures, or at public meetings. No Minister has ever thought of insinuating to him that he should hand in his resignation. It is Prussia that pays its professors, not the King. The professor's chair is an inviolable asylum. After the last war there was a professor at Göttingen, a determined partisan of the autonomy of the smaller German States, who entered into open controversy with William the First, and personified the resistance to Prussia at least as distinctly as did the King of Hanover.

The regular salary of the ordinary professors varies in the different universities, and even with different professors in the same university. Every ten years it is increased. Moreover, the academic faculty, in order to attract to itself some famous professor, has sometimes been obliged to offer him extraordinary advantages. At every vacancy a curious sort of appraisal of the value of the professor takes place between the universities. It is all done discreetly, but the bidding is none the less genuine. It is thus that a professor according to his merit as a savant, or his success in his in

struction—the two advantages are equally sought for—able to advance from the smaller to the more important universities; and if he has a place at Vienna or Berlin, he is obliged to maintain it by unceasing efforts. The professor's chair in Germany is never a place of repose, or the reward of a completed career. There is never-ending toil and contest. Material interests forbid sloth.

In fact, the professor does not receive all his emolument from the State, as is the case in France. A part of it is paid him directly by the students. The French system may have its merits, but it certainly has one disadvantage. The least is that it becomes customary for this fixed salary to be regarded as the recompense for a life consecrated to toil, and not as the remuneration for the work of instruction. The consequence is, that the professor occupies himself but very little with his pupils. Our men of science rarely have about them students from whom they receive fees. They entrench themselves in this matter behind a certain dignity which in Germany is judged very severely. The Germans say to us "That your instruction is gratuitous, appears to be advantageous to the students, but it is rather more so to the professor, by freeing him from the duty of instruction at hours for which he has the right to maintain that he is not paid." It is doubtful, indeed, whether this system be of advantage to the student. All those who have frequented, or had the direction of laboratories, know that those alone work who pay. We are so constituted. Gratuitous higher instruction is a generous dream, but it is a dream; and, moreover, is it quite just that those studies which lead to honor, to great industries, to brilliant and lucrative positions, should be gratuitous, when no one thinks of demanding the same privilege for that secondary instruction, which now-a-days is indispensable for entrance into the most modest career? There is a certain inconsequence in this.

The Germans find a double advantage in the fact that the professor, besides receiving a fixed salary from the State, is directly paid by his pupils. In the first place, the teacher seeks the more to adapt himself to their needs; and, besides, his fees are always in proportion to his merits, whether the students be attracted by his brilliant lectures, or the wish to

ear the author of famous works. In France the student pays each trimester a certain entrance fee, which, in fact, confers no privileges upon him, since the instruction is open to the public. The sum of these fees is to be added to the price of the examinations and of the diploma. It is a tax upon the title of doctor. In Germany the student chooses, at the beginning of the semester, the courses which he proposes to follow. He inscribes his name with the Secretary, and pays for each one a certain fee fixed at the pleasure of the professor. The rules content themselves with setting a minimum, and the way in which this is established shows the constant tendency of the German universities to render to everyone according to his works. The minimum to be paid by the student for a semestrial course is as many monetary units as the professor gives lessons a week. If he gives, as is not seldom the case, five lessons, the fee is five florins in Austria; in Prussia, five thalers. The professor receives the whole of the fees, but they are paid at the Secretary's office, thereby avoiding any awkwardness. By the income which he draws from the students, the professor is interested in giving a large number of lessons in order to increase the minimum, and to have them good in order to attract many auditors. By that part of his salary which he receives from the State, he is secure in sickness and old age. There is no retired list; the title of professor is held for life. When the professor becomes infirm, he rests. Owing to the extraordinary professors and *privat-docenten*, instruction is not impaired.

The Prussian regulations say: "The mission of the university is by means of lectures and other academic exercises to give general instruction, both scientific and literary, to young men suitably prepared by their elementary studies, and it is moreover to qualify them to enter the different branches of the service of the State and of the Church, as well as the professions which demand a learned education of a high order." It is evident that with its small number of ordinary professors the university cannot fill out such a programme. It is here that the extraordinary professors and the *privat-docenten* come in. At Berlin for twenty-seven ordinary professors in the Faculty of philosophy, there are

thirty-three professors extraordinary. This number is not limited. It depends upon the resources of the university or the sums that the government puts at its disposal. If the Faculty finds that a new or important branch of science is not represented in their instruction, it seeks a professor extraordinary to fill the gap, or it gives this title to some man of merit whom it wishes to secure, meanwhile waiting for an opportunity to attach him more closely. The professors extraordinary are appointed by the minister on the nomination of the Faculty. Their functions are for the most part the same as those of the ordinary professors. Often they have no other salary than the student's fees, the amount of which they fix as the other professors do. In a way of exception, a regular salary may be granted to those whose courses are not of a nature to attract many pupils.

As to the position of *privat-docent*, it is open to every one who has attained the degree of doctor. It is acquired by a special examination, the details of which are carefully fixed by rule. It is an examination, but without competition. There are no competitive examinations in Germany; they cannot be reconciled with the spirit of a university, which is to leave the entrance free to every capacity, with the number only limited by the necessities of instruction. The *privat-docenten* never receive any other emolument than the student fees, and lose their title if they remain two years unemployed. They vary the instruction of the Faculty as the extraordinary Professors complete it. The lectures of the *privat-docenten* often serve as repetitions. In fact nothing is more common than to see several courses on the same subject in one Faculty. Hence arises rivalry among the professors which cannot but be of advantage to the student. There is perfect liberty on both sides. The professor teaches what he will and as he will, the student goes where he knows he can best secure economy and profit. A curriculum allows him to attend all the courses of the Faculty *gratis* for the first ten days of the semester. Only at the end of that time is he obliged to make his choice and register himself. A certificate of attendance at a single course is even at that of a *privat-docent*, or at another university admits one to the examinations, and no examiner takes amiss that the candidate has not followed his lectures.

The higher German education has been reproached with the fact that the cost is higher than it is with us. Without doubt the sums paid to the professors at the beginning of each semester soon exceed the trimestrial fees of our French student, but we must take into consideration the number of hours given by the professor to his courses, the number of pupils that he has, and the facilities given for practical instruction. One can thus readily convince himself that the expenses of the German student are much more thoroughly repaid, and that the amount of instruction which he would receive in France for the same sum cannot be compared with that which he gets in Germany. And moreover, to appreciate the expense of education in any country, it is not enough to know what the schooling costs, we must ascertain the total amount of the academic expenses added to the general cost of removal and living. It is evident that the smaller university towns offer to students of moderate means advantages of cheap living, which are not to be found in Paris. Certain universities, as that of Greifswald, are attended almost exclusively by poor students, while Bonn and Heidelberg, where it is the fashion to drink wine, are the headquarters of the wealthy and frivolous. Finally, one ought besides to take into account certain conditions which lessen still further the average expenses of studying in Germany. The professor can always at his pleasure exempt a student from the payment of his fee. He always does this for foreigners who bring letters of introduction to him, and we have everywhere found that this hospitality of knowledge is generously practised. Another custom grants the same exemption to the sons of professors and of all the dignitaries of the universities even down to the secretary. The faculty itself can remit all or half of the fees to such students as shall prove their poverty and at the same time give evidence by a special examination of merit and ability. The number of those who profit from these immunities is estimated at 1200, or one-fifth of the German students. The expenses of the students are often defrayed by exhibitions, founded either by the state, by parishes, or by private individuals. At Greifswald, where there are only 350 students, there are more than forty such foundations.

They are divided on examination among students who bring certificates of poverty. There are other and humbler foundations; the university for instance always disposes of a certain number of free plates, in a restaurant of the town, and these are allotted each semester to poor students after a special examination, which is held with a certain solemnity before the assembled faculty, and only includes the subjects studied during the last term. Among institutions which have been founded in a more modern spirit, the solicitude of the *alma mater* for her indigent students is no less constant. There has existed at Heidelberg since the year 1863 an association for the assistance of sick students. The professors belong to the association. The students pay a semi-annual subscription of 30 kreuzers, but are exempt from this in case of poverty. The professors contribute to it their time, care and good will. The patients have a special ward in the hospital, and choose the doctor they prefer. Those who are able pay their board, the others are attended gratuitously. The council of the association is composed of the pro-rector, who corresponds to the rector of other universities, two professors of the medical faculty, a doctor of the town, two professors chosen each year by the senate, and five students. The admission into the council of the physician of the town, who is not a member of the university, is to be noticed. It is an infraction of the ancient customs of such corporations, and may be regarded as an instance of genuine progress.

If we have mentioned the pecuniary assistance given to students in Germany, it is rather as a proof of the universal interest that advanced studies excite there than as one of the merits of the system of instruction. It is very doubtful whether bounties, scholarships, encouragements of all kinds, and prizes (unknown in the German universities,) contribute to the advance of study and science as we appear to believe in France. What is really of importance is the number, merit and independence of the teaching body, and the time it gives to its pupils. It is also a matter of especial importance *that the system of education should be capable of receiving all necessary modifications without delay and without violence.* The higher instruction in France,

imprisoned from its origin in the administrative mould, to-day the same that it was fifty years ago; scarcely have any new chairs been created. In Germany on the contrary, the system of education, free from all governmental shackles, has continually changed, grown and perfected itself, by the mere rivalry of the various universities. In the last fifty years the number of courses has at least doubled. The faculties of law and theology have remained nearly stationary, but those of medicine and philosophy, more allied to the movement of the age, have seen the number of their instructors increase from day to day. At Berlin the number of professors and *privat-docenten* of the faculties of medicine and philosophy was 127 on the 1st of January, 1862; in 1864 it was 140; an increase of 13 professors in two years, and as each gives on an average two courses, this is an augmentation of twenty-six semi-annual courses. It is true that this astonishing increase has ceased since 1864 at Berlin and at all the German universities. Does this mean that the system of education has reached the point of perfect equilibrium with the needs of the country? We are rather obliged to see in this a consequence of the great political crisis through which Germany is at this moment passing.

GEORGE POUCHET.

LOOSE THREADS IN THE SCHOLASTIC WEB.

MANY noble ships have been lost, because shiftless builders overlook unsound planks. Because of the inefficiency of teachers, the world is filled with dwarfed men. The neglect of certain departments in the early education of a boy will cripple and mar the man. It is neither a long nor a hard task to show this. Too little attention is given to the *style* of compositions. It is not enough that an article faultless in grammatical construction and free from misspelled words is handed to the teacher. I had rather read a badly written original essay than a faultless borrowed one. Old magazines furnish more than half of the compositions handed in for correction. Hereby is encour-

aged barrenness of thought. The boy grown to manhood cannot write a letter without hunting over books for choicest expressions, which he neglects to mark as quotations.

I saw a very nice letter, one of the style, written to make an impression, beginning with—"Friendship may live without being fed and cherished by correspondence; but, with that additional benefit, I am of the opinion it will look more cheerful and thrive better," etc., quite entirely the commencement of one of Prior's letters to Thomas Hanmer. Then came a tit-bit from one of Stern's gay letters, about being as "Merry and as innocent as our first parents in Paradise." After this, something from Pope, very pleasant to read.

The only merit of the letter was the ingenuity it displayed.

"He always writes just so beautifully, he is very brilliant," said the lady who received the letter. I left her to cherish the pleasant delusion; not telling her, as Lady Maccartney once told a young girl who was charmed by her lover's epistle, that it was stolen, showing her the sweet lines of Randolph's poems, and bringing upon the miserable plagiarist a just punishment.

Because the compositions of children are not justly attended to, ministers fall back upon their old sermons after a few years; sermons that at the start were not their own. Built upon the principle, "here a little, and there a little."

One of a family of celebrated writers said, in answer to my question, "How is it that you are all gifted in writing?" "Because we were trained to it. When we were little, our father compelled us to write sketches, stories, anything of interest occurring during the day. We were required to note down and read aloud before the family. What seemed hard at first became our chief pleasure. As we met with no real incidents, we invented to suit our taste. If we exceeded natural limits, we were corrected. 'Be true to Nature, boys,' was our daily lesson. We took delight in writing because our minds were filled with pleasant fancies. We have never been tempted to borrow imagery or glowing expressions."

The writers educated in this family take a high rank in

cause of this originality, and are not likely to lose their popularity from poverty of style.

Teachers neglect to train the voices of their young pupils, forgetting the old adage, "As the twig is bent the tree is inclined." If teachers would be more watchful with the little lads, preventing sing-song style, drilling them into the natural, easy tone of voice, the clear enunciation, we might hope that future generations would hear less of the tiresome drawl and hum-drum delivery of the pulpit. Pay more attention to this department, and we shall have more, "silver tongued" orators.

Speech is a royal faculty, it floods the world with music and eloquence. Educate the young voices, and by-and-by will rise a race of orators who will play the magician over their audiences—who will bewitch and sway multitudes.

JEAN MCLEAN.

THE EDUCATION OF MECHANICS.

SOMETIME ago the Legislature of Massachusetts directed the State Board of Education to consider the expediency of making provision by law, for giving free instruction to men, women and children in mechanical drawing, either in existing schools, or in those to be established for that purpose, in all the towns in the Commonwealth having more than five thousand inhabitants, and report a definite plan therefor. Messrs. D. H. Mason, John D. Philbrick, G. G. Hubbard, and Joseph White, Committee of the Board of Education, have requested Professor Louis Bail, of the Yale Scientific School, to favor them with information under the following topics:—1. The advantage which might be expected to result from the contemplated instruction in mechanical drawing. 2. The course and methods of instruction appropriate for the object in view. 3. The models, casts, patterns, and other apparatus necessary to be supplied. 4. The organization and supervision of the proposed Drawing Schools. 5. The best means of promoting among the people an interest in the subject of

art education. 6. Any other remarks relating to the subject, not embraced in the foregoing topics.

Professor Bail's response is comprehensive and eminently practical. Its suggestions will be interesting and profitable to educators in all latitudes, hence we give it entire:

"1. The advantages which might be expected to result from the contemplated instruction in mechanical or industrial drawing."

Such instructions will make our nation richer by making our artisans more tasteful and skillful, and by developing the latent talent of the industrial classes.

Without this cultivation no people can aspire to become a first-class manufacturing nation; nor will they be able to compete successfully with the products of skilled industry in the great markets of the world.

Special scientific schools or colleges, are indispensable to the highest development of the arts under consideration; but they are insufficient; for they fail to reach the masses, and therefore cannot reform the industry of the country. The scientific schools have little effect upon the masses of our mechanics, except to prove the height to which the mechanical profession may aspire; they furnish no means acceptable to the great body of mechanics, and offer to them no systematic instruction by means of which they may become more intelligent and skillful in the performance of their labors.

There is too much guess work in our mechanical operations, that can only be obviated by such instruction as you propose. A great deal of time and material is wasted in "cutting and fitting," and making things only "about right;" when absolute certainty and correctness of plan should have been secured before hand. There is no form, however complex, that cannot be indicated by drawing in such a manner, that an intelligent workman, who is competent to read or understand drawings, can execute the object represented with absolute certainty. The simple ability to read plans and drawings fits a man for a good position. In fact the foreman of a shop is often the only man who is able to do this. By leaving our mechanics in this semi-barbarous condition we lose much

ey and credit, and lower the intellectual and moral
lition of our artisans. The more mind a man brings to
upon his business the more respectable and self-respect-
ie will become.

hy is it that a majority of our apprentices are of a
gn parentage? Why is it that American boys are
ring too proud to "learn a trade?" Is not the cause
d in the fact that our whole system of education
quite ignored an industrial life? The only legitimate
t of our educational system will be the production
wyers and doctors, or at the least, clerks and school
iers. In consequence of this defect, children receive
mpression that education has no bearing on mechanics;
a trade is only manual drudgery. The result is that
select the most effeminate employment in preference to
y mechanical work.

hen our educational system provides our youth with
intelligent preparation for the prosecution of industrial
; the trades will be filled by a more cultivated class of
g men, and our boys will blush to be found selling pins
needles; but they will not be ashamed to be seen using
ammer and chisel.

e whole nation is deploring the lack of good Orna-
al Designers. We are becoming tired of sending
any millions to Europe for articles that we might
ace cheaper at home if we had skillful designers. This
ch of industry affects articles for the homeliest use.
ty of form and ornamentation is the quality always
ed to as perfecting the claim to notice and value. It
ed that the female population will so far as possible
y a field so well suited to their capacity and taste.

The course and methods of instruction appropriate
e object in view."

iall perhaps be pardoned if, under this head, I allude
to my own experience and labors. In apology
is, I will add, that I was, when quite young, appointed
ssor in the Technic Institution in Nuremberg, Bavaria,
sustained, in connection with the regular scientific
technic) and trade school, an industrial school for
anics. I have, since this time, been much occupied in

consideration of the interests of the industrial class, ~~and~~ have had constant experience by the *actual teaching* ~~of~~ persons engaged in every common branch of industrial labor. I commenced work in this country in the Mechanics' Institute, New York, and have since had several thousand artisans under my instruction. My experience has led me to entertain the most sanguine hopes for the future of American industrial art. I believe there is no other class so willing to make so great a sacrifice to obtain instruction. Mechanics are the sinew of our commonwealth and deserve the highest consideration of educators. At the conclusion of a lesson, gray-haired mechanics have often almost overpowered me with thanks, saying to me, "This lesson is worth hundreds of dollars to me," or, "I shall work better all my life for this." I have often found a pupil repeating the lessons to others, poorer than himself. I have become so affected by the conviction of the need of mechanics and their desire for knowledge, that I resolved to give a free course of lessons each year to those who are unable to pay for instruction. Of last year's course our school superintendent says, in his report, page 33:—"Within a few weeks I have been told by members of that class that the knowledge obtained is worth hundreds of dollars to them, in the increased facility and exactness with which they are enabled, in their daily work, to prepare their patterns and construct difficult forms in mechanical operations."

The lessons referred to are given in the city hall, on Friday evenings. We shall be happy to have any person interested give us a call.

In no department of our industry would the result of judicious training prove more speedy, obvious, and profitable than in ornamental design. Any system of instruction that fails to provide for this important branch of industry will be defective. The mechanical use of copy books will never make a designer. The competent teacher in ornamental design will be able to do much for his pupils in a few lectures. He will commence by illustrating the simplest form of ornamentation by the use of the ~~dot~~. He will bring examples from nature, as feathers, shells,

flowers, etc. Next he will draw lines giving the simplest forms, and show their different changes and combinations. A figure composed of a multitude of lines only serves to confuse the mind of the pupil. As the power of analysis increases, more complicated ornaments should be presented. The various styles of ornaments peculiar to different nations must be presented. Beautiful forms of vases, etc., must be presented as models. The taste of the pupil will soon become informed ; but he will reap little practical benefit, unless these instructions are preceded by sound elementary training of the hand and eye. This training should form the basis or initial step to every department of drawing.

The pupil in mechanical drawing must first acquire knowledge of the use of the mathematical instruments. He must then learn to draw practical problems in plane and descriptive geometry, which will be found to be the language and interpreter of all mechanical drawing. Next comes isometrical and perspective drawing. At the conclusion of these lessons the pupils are divided into different classes, in accordance with their pursuits. The common practice of commencing mechanical drawing by placing a pattern before the pupil and requiring him to copy it is a miserable caricature upon teaching. Every step of the operation should be performed and thoroughly explained in the presence of the pupil; it should also be illustrated by models.

The instructor should possess broad culture, but he should not confuse his pupils with the variety and extent of his knowledge. He should be able to bring out of his treasures "things new and old," but he should never present any question for speculation or display. He should study to present principles of the greatest practical use to his pupils and to teach them the practical application of these principles. It requires great judgment and experience to select from the mass of knowledge what is most practical and fitting. Our mechanics, as a rule, are too much wearied with labor to find interest in questions outside their calling. They want the prospect of some tangible good to incite them to industry and improvement. It appears to me, therefore, that the initial undertaking should be devoted chiefly to

practical results in the industrial arts. The individuals who are by this course incited to higher attainments will be provided for in some of our scientific schools.

The principal special classes will be as follows:—

1. Machinists. 2. Carriage-makers. 3. Carpenters, joiners and stair-builders. 4. Tinnerns. 5. Masons and stone-cutters. 6. Carvers and modelers. In connection with these classes lessons should be given in physics, mechanics, chemistry and mathematics.

I have private notes of my entire course in the different branches of mechanical drawing, and if they can afford any aid in this cause, I should be happy to show them to any gentleman of the board. You may at any time command my services in this good cause.

“3. The models, casts, patterns, and other apparatus necessary to be supplied.”

For descriptive geometry:—Models of various planes, superficieses, and solids.

For perspective:—The perspective plane, with various apparatus; also, model for explaining the arches, etc.

For Machine Drawing:—Models of wood of various parts of machinery; a sectional working model of an engine; models for illustrating the principle of belting pullies; the various wheels and other simple models.

For Architectural Drawing:—Models of the Grecian and Roman orders, and of various styles; models of roofs of houses and steeples, of framework of houses; and models of various winding stairs, doors and windows, etc.

For Carriage-makers:—A simple frame of a carriage for the explanation of the “French rule.”

For Tinnerns:—Envelopes of various geometrical figures and solids.

For carvers, modelers, decorators and designers for fresco, paper hangings, carpets, calico, silver and glass-ware:—A variety of plaster models and ornaments, with a large variety of patterns, ornaments, examples of various styles and countries.

“4. The organization and supervision of the proposed drawing schools.”

The foundation of such branches of education as it is now

proposed to introduce should be laid in our public schools ; therefore the success or failure of the enterprise must depend in a great degree upon the zeal and intelligence of the teachers. The Normal schools should be provided with a thorough and systematic course of instruction. It would be wise to convene a Normal session with the express object of preparing teachers for the work. These teachers should be required to submit to an examination by a competent authority, who should also supervise their work. If it is objected that many of the class it is proposed to benefit by special instruction will not remain in the public schools till they advance to drawing, I reply that a child five years old should begin to learn to draw. The longer instructions are deferred after this age, the greater the loss. As soon as a child enters school, a regular systematic training of the hand and eye should commence. This is of double value, promoting in the child habits of observation and comparison.

This is not a matter of speculation but has been proved by actual practice in this and other cities. If any person doubts the expediency of such early training, a visit to our public schools would convert him. I am certain the time is not far distant when this training will be accomplished, and that our grammar schools will also make some progress in industrial drawing. Drawing from objects and models should become as familiar as writing to the pupils of these schools.

We have been speaking of what *should* be ; our purpose is to take the material we have at hand and make the best use of it. It appears to me that in the special drawing schools we must depend mainly for instructors upon the public school teachers. My experience as teacher leads me to conclude that the preparation of teachers may be accomplished without special difficulty. I have seldom given a course of lessons in industrial drawing to mechanics, but at the conclusion of the term some leading members of the class would step into the front rank and take the position of teacher ; their labors have often been attended with marked success.

Teachers are more intelligent than the industrial classes, more ready to receive and more expert to communicate instruction. I have had many teachers under my instruction

and supervision, and I have found them prompt to receive and impart knowledge. Without doubt each town of five thousand inhabitants has a teacher already somewhat skilled in drawing, who would be willing, with such encouragement as the Board will be able to offer, to fit himself fully for the work. The Board should define strictly the duties of these teachers. In the large towns special drawing schools on a more extended scale should be established.

“5. The best means of promoting among the people an interest in the subject of art education.”

The industrial classes here especially referred to are already in advance of educators on this subject, at least this appears to be the case in our vicinity. It was in answer to the persistent demand of this class that drawing was introduced into our public schools.

Copying pretty little drawing patterns has not excited the interest and confidence of the masses, nor the approval of the cultivated class; but we believe the industrial classes may safely be trusted to recognize their true interests. To promote a permanent interest in art education, we have only to consult the greatest good of the people in our plan of instruction. There is nothing like true teaching to arouse and retain the popular heart.

Some people have the impression that everything can be accomplished by words: a good lecture upon art does indeed act as a stimulant, but cannot afford nutrition and growth. “Talking” without “chalking” is to little practical purpose with the masses. Among the advantages that will result from the contemplated course of instruction in our public schools, I omitted to state that the immediate effect would be to elevate the character of our scientific schools. The pupils in these schools have at present little or no preparation in drawing. Consequently a great deal of time that should be spent in advanced study, is devoted to elementary drawing. This greatly detracts from the character and efficiency of these schools.

Apply the same condition of things to any other department of college instruction and the difficulties will be appreciated.

LOUIS BAIL.

THE LABORING FORCE OF THE HUMAN HEART.

THERE is no organ in our bodies that has a more important influence upon health, at all ages of our lives, than the heart, whose rhythm and force are governed by laws of nerve-force, of which we are at present almost totally ignorant. Regarded, however, from a mechanical point of view, as a hydraulic pumping machine, our knowledge of the heart is more accurate, and may yet lead the way to greater knowledge of the physiological action of this vital organ.

The heart, regarded as a pumping-machine, consists of two muscular bags (*ventricles*), one of which drives the blood through the lungs, and the other through the entire body. This blood is forced, by a pumping action, repeated seventy-five times each minute, through both lungs and body, and experiences in each case a resistance which is measured by the hydrostatical pressure of the blood in the pulmonary artery and aorta. The resistance offered to the circulation of the blood, by the capillary vessels of the lungs and body, is different; but the total quantity of blood that passes through the lungs and body in a given time, must be the same; from which it follows, that the resistance offered by the capillaries must be in the proportion of the hydrostatical pressure in the great arteries leading from the ventricles of the heart. If, therefore, we knew that pressure for one side of the heart, and the relative forces of the two ventricles in contracting, we should know the entire resistance overcome by the heart at each of its beats. If, in addition to the hydrostatical pressure in one ventricle, and its ratio to that in the other ventricle, we knew also the quantity of blood forced out of each ventricle against this pressure, we should have all the elements necessary to calculate the laboring force of the heart, as will be presently shown.

Let the reader grant, provisionally, the following propositions:—

That three ounces of blood are driven from each ventricle at each stroke of the heart.

II. That the hydrostatical pressure in the left ventricle and aorta, against which the blood is forced out, amounts to a column of blood 9.923 feet in vertical height.

III. That the muscular force of the left ventricle, in contracting, bears to that of the right ventricle the proportion of 13 to 5.

With these postulates granted, we may now proceed to calculate the daily laboring force of the heart as follows. At every stroke of the heart, three ounces of blood are forced out of the left ventricle against a pressure of a column of blood 9.923 feet in height. The work done, therefore, at each stroke is equivalent to lifting three ounces through 9.923 feet. This work is repeated 75 times in each minute, and there are 60×24 minutes in the day. Hence the daily work of the left ventricle of the human heart is $3 + 9.923 \times 75 \times 60 \times 24$ ounces lifted through one foot; or, since there are 16 ounces in the pound, and 2,240 lb in the ton, the work done by the left ventricle of the heart in one day is $\frac{3 \times 9.923 \times 75 \times 60 \times 24}{16 \times 2,240}$ tons lifted through one

foot. Reducing this, we find the daily work of the left ventricle is 89.706 foot-tons. The work done by the right ventricle is five-thirteenths of this quantity (post. III.); the daily work of the right ventricle is therefore 34.502 foot-tons. Adding these two quantities together, we find for the total daily work of the human heart 124.208 tons lifted through one foot.

It is not easy for persons unaccustomed to these calculations to appreciate quickly the enormous amount of laboring force denoted by the preceding result. To facilitate this appreciation, compare it with the following description of labor:

1. The daily labor of a working man.
2. The work done by an oarsman in an eight-oar boat-race.
3. The work done by locomotive engines, or animals climbing a height.

1. The daily labor of a working man, deduced from various kinds of labor, from observations spread over many months, is found to be equivalent to 354 tons lifted through one foot, during the ten hours. This amount of work is less

than three times the work done by a single heart, beating day and night for 24 hours: thus the hearts of three old women sitting beside the fire, alternately spinning and sleeping, do more work than can be done in a day by the youngest and strongest "navvy."

2. If an eight-oar boat be propelled through the water at the rate of one knot in seven minutes, the resistance offered by the water may be estimated at 81·36 lbs. by calculation, or at 74·15 lbs. by actual observation. From this result, and from the fact that 575 ounces of muscle are employed by each of the eight oarsmen, we can calculate that 15 foot-pounds of work are expended by each ounce of muscle during each minute of work.

No labor that we can undertake is regarded as more severe than that of the muscles employed during a boat-race; and yet this labor, severe as it is, is only three-fourths of that exerted day and night during life by each of our hearts.

The average weight of the human heart, which increases with age (for obvious reasons), may be estimated from the following tables:

	Average oz.
1. Meckel.....	10·0
2. Cruveilhier.....	7·5
3. Bouilland.....	8·4
4. Lobstein	9·5
5. Boyd (æt. 30—40).....	10·4
6. Boyd (æt. 40—50).....	10·5
	<hr/>
Mean.....	9·39

From this weight, and the work done by the heart in one day (124 foot-tons), we can calculate the work done by each ounce of the heart in one minute, as follows:

Work done by the human heart, in foot-pounds per ounce per minute, $\frac{124 \cdot 208 \times 2240}{9 \cdot 39 \times 24 + 60} = 20 \cdot 576$ foot-pounds.

This amount of work exceeds the work done by the muscles during a boat-race in the proportion of 20 to 15.

3. There is yet another mode of stating the wonderful energy of the human heart. Let us suppose that the heart expends its entire force in lifting its own weight vertically; then the total height through which it could lift itself in one

hour is thus found, by reducing the daily work done in foot-tons (124'208) to the hourly work done in foot-ounces, and dividing the result by the weight of the heart in ounces:

Height through which the human heart could raise its own weight in one hour $= \frac{124'208 \times 2240 \times 16}{24 \times 9'39} = 1,9754 \text{ ft.}$

An active pedestrian can climb from Zermatt to the top of Mont Rosa, 9,000 feet, in nine hours; or can lift his own body at the rate of 1,000 feet per hour, which is only one-twentieth part of the energy of the heart.

When the railway was constructed from Trieste to Vienna, a prize was offered for the locomotive Alp engine that could lift its own weight through the greatest height in one hour. The prize locomotive was the "Bavaria," which lifted herself through 2,700 feet in one hour; the greatest feat as yet accomplished on steep gradients. This result, remarkable as it is, reaches only one-eighth part of the energy of the human heart.

From whatever mechanical point of view, therefore, we regard the human heart, it is entitled to be considered as the most wonderful mechanism. Its energy equals one-third of the total daily force of all the muscles of a strong man; it exceeds by one-third the labor of the muscles in a boat-race, estimated by equal weights of muscle; and it is twenty times the force of the muscles used in climbing the mountain, and eight times the force of the most powerful engine invented as yet by the art of man.—*Nature.*

SAMUEL HAUGHTON.

THE VALUE OF A COMMA.—A sharp wheat-buyer in Solano county, California, seeing quotations slightly advanced, telegraphed to his principal to learn if he should buy at quotations. The answer came—"No price too high!" On the strength of the omission of the comma, he bought 200 tons, which he was obliged to sell at a loss of \$1 per ton. A comma after "No" would have saved that loss. So much for punctuation.

OUR SCHOOL HOUSES.

OUR school houses may be divided into three classes—good, medium, and poor. Those belonging to the first class have been built not so much with regard to expense as to the wants of the school. Some of these first-class houses have been built at a comparatively small cost. It is not necessary to a house of this kind that it be erected at an extravagant outlay of money. Adaptation to the purposes for which it is built should be the guiding principle, and if the wants of the school can be properly provided for at a reasonable figure, it is certainly better than to rush into extravagance. The locality in which the house is built very frequently will determine the character of the structure.

In some of our rural districts good school houses are met with—houses of the proper capacity, well built, neatly painted, furnished with suitable desks and settees, black-boards, maps, etc., properly heated and ventilated, and with sufficient playground enclosed and improved in a creditable manner. Such a condition of things can be had in some localities for perhaps a thousand dollars, and how can a thousand dollars be more properly applied? A house answering the purposes of a city or a large town equally as well would cost several thousands of dollars, and it is an evidence of the friendliness with which our free school system is regarded that we have common school houses that have cost fifteen, twenty, thirty, and even one hundred thousand dollars. First-class houses, whether in city or country, are an exception, and not the rule.

Medium school houses are more numerous. These are comparatively comfortable, but not furnished with many of the appliances to successful teaching. They are generally not well ventilated; sometimes not well seated; the school grounds are sometimes not enclosed, or properly improved. Perhaps school houses of this class are the rule, while good and poor houses are the exceptions.

Still, poor school-houses are by far too numerous. Many of them are the relics of other times; fossils that, like the chthytic remains which Hugh Miller loved to describe,

speak of ages past. Some of these are the little log structures that mark the transition era from the state of nature to a condition of civilization, and as such are doubtless invested with a peculiar interest for those who revel in the records of our early history. The little log school house with windows eight by ten, standing, as it generally does, on some tract so utterly barren, rocky, and useless that neither the hand of progress nor of avarice has been stretched forth to molest its

“ Ancient, solitary reign,”

may serve admirably well to remind the rural Monkbains of the days of block houses and Indian warfare ; but it certainly does not reflect much credit upon the present generation to retain and use it for the purposes of a school house. Not only these primitive log structures, but some of those buildings of a more recent origin and pretentious appearance, by reason of their bad location and the utter absence of every convenience, are totally unfit for the purposes for which they were erected.

I have seen school houses that seemed to have been built with a studious disregard for every quality which a school house should have. They are small, poorly lighted, poorly heated, with no means of ventilation, with seats and desks uncomfortable, and in some cases positively injurious, without playgrounds, without shade trees, without outhouses. They have no maps, no charts, and frequently no blackboard, or but a miserable apology for one, and the whole room is so gloomy and unattractive that the teacher might well sing with Hood,

“ That shattered roof, and this naked floor,
A table—a broken chair—
And a wall so blank, my shadow I thank
• For sometimes falling there !”

This picture is not overwrought. It falls far below the reality. That ghastly room at Dotheboye Hall, where the quaking urchins that Fate had consigned to the care of Wakeford Square sat at their cheerless tasks, has many a counterpart among those buildings known among us as school houses. How can we expect children to develop in moral,

Intellectual, and physical health, strength and beauty, surrounded by such untoward influences? The school house, in all places after home, should be made attractive and pleasing. When the house has been built, it certainly will not cost much more to finish and furnish it in such a manner as will delight the eye, instruct the mind and heart, and preserve the health, strength, animation, and buoyancy of the young.

T. J. CHAPMAN.

"AND" AFTER A PERIOD.

S. W. W., in the MONTHLY for May, either innocently misapprehends or purposely misconstrues my remarks upon "the misuse of the word 'And'" in a previous number.

A reader of ordinary candor and discrimination cannot fail to perceive at once that I am not discussing *conjunctions* as a *part of speech*, for I clearly and purposely specify the word "*And*" in its proper office as a copulative conjunction, and I confine myself to the consideration of the frequent misuse of *that one word*, making no reference whatever to any other, whether of the same part of speech or not. But "W.," ignoring this fundamental fact, immediately leaps over the boundaries of the subject proposed, and hurries away to gather up all the other conjunctions and lug them into the same restricted category, not appearing to be aware of his utter failure to crowd a dozen words into a space already occupied and completely filled by *one*. As well might one talk about the moon and stars because the word conjunction is often used in speaking of their motions, as about "but," "nor," "either," or any other irrelevant subject while discussing the misuse of "*and*."

If "W." desires to write a dissertation on the general subject of conjunctions of all classes, let him say so, and then "stick to it." But if he only intends to discuss the use or misuse of a *particular one*, let him name it, and then confine himself to *that*, and we shall know where to find him and what he means. This is all I proposed or attempted to do;

and, *in so doing*, could not possibly have proved too much nor too little in reference to other words which were necessarily excluded from consideration by the limitations of the subject itself as announced in the title. I did not deny, and therefore impliedly admitted, that *other* conjunctions are with great propriety often used after a period. This is especially true of the disjunctives. "W." does not seem to be aware that there are two classes of conjunctions with almost opposite meanings in many cases, for he jumbles them together, to be all treated alike, irrespective of meaning.

Let us now examine that "sophistical argument" about "the period." A period indicates much more than a mere "verbal completion of a sentence." It has, or should have, reference to the *meaning* of sentences. That well-constructed sentences have *sense* as well as words to be affected by punctuation does not seem to have occurred to "W." in this connection.

Let us go to the root of the matter, and ask, What is a sentence? Prof. Andrews, in his "First Latin Book," gives the neatest, most concise, and beautiful definition that I know of in the English language. It is "a thought expressed in words." Thought is the primary element, words a secondary. A continuous discourse is composed not only of words, but of thoughts also, following each other in a connection more or less intimate, which is indicated by a judicious use of the various punctuation marks. These, when understood and observed, are great helps to the reader. — A *good* reader will make a slight pause at a comma, one more distinct at a semicolon, one still more marked at a colon, and at a period will make a still longer rest, and always let his voice fall as he does not at any of the others.

As the others are only partial pauses or stops, what shall we call this, which so differs from them? *Properly*, and not "loosely," a "*full stop*," whether it occurs in the middle or end of the discourse. It is the same point doing the same duty, and having the same effect wherever used. Its office being definite and fixed, we always know just what it means. In logical discourse, or any other that has clearness, force and point, each thought, or sentence as such, is complete in itself, and this completeness is indicated by the

; completeness, however, is not synonymous with inference. A treatise of any length necessarily contains successive thoughts or sentences, each more or less dependent upon the other in bringing out the *whole subject*, as a whole, is not complete until the end is reached. A palpable distinction between a complete sentence and a complete discourse "W." fails to see, and hence the idea that, however long the discourse, there is *pro-ut* one "full stop," and that "at the end," where it is unnecessary, because the reader **MUST THERE STOP** *rate*, without a period or any other mark to tell him he is through. Again, because of the aforesaid partiality and dependence of complete sentences necessary for intelligent discourse, "W." argues that "and" may be used after a period; a conclusion that does not follow by any means.

As to "the sense," "W." asks, "And why not begin a sentence with 'and,' if the sense justifies it?"—giving us a specimen of elegance in style by placing a period between words." Of course, if one is good, two must be better. The sophistry of this question is in taking for granted that *the sense does* justify it, which I deny, and which "W." cannot prove. To be justified by the inadvertance or carelessness of any number of our best writers is one thing, but to be justified by the "*sense*" is quite a different thing, which once "W." again utterly fails to see. The sense very rarely justifies, and still more seldom if ever requires, the "and" after a period, as can be easily shown. The extracts which "W." makes from Steele, Addison, and Macaulay to support his position would be all decidedly improved by striking out the "and." The extract from Macaulay would be much improved by either striking out the "and" or more perhaps by leaving it, and converting the period into a comma, which would give the otherwise unused "and" a chance to do its appropriate duty as a conjunction. I am greatly obliged to "W." for that extract, even with its blemish, and I endorse it fully, for it could be more to the point on this subject. It appears though Macaulay had noticed this thing, and was one of his strong and beautiful essays on "the Use of And."

I would now call special attention to a simple and almost infallible test. Take any good writer you please, the beauty of whose style is marred by this blemish, and as you read pencil in hand, see how it improves both sense and diction often either to strike out the useless "and," or, leaving it convert the preceding period into a comma or other pause as the connection may require. In every instance it will be found that either the *period* or the *and* can be spared with evident advantage. It is sometimes surprising to see what an improvement this thoughtful little change will make. It is a good rule worthy to be kept in mind, never to use superfluous words, nor use two words where one will do as well; anything more is redundant verbiage. *Conciseness* is one of the most important elements of power in effective writing or speaking.

I freely acknowledge my utter inability to see any connection between "W.'s" long extract from Lindley Murray and the subject now under consideration, which is simply and only "*And after a period.*" As "W." prudently shrinks from the task of showing *when* and *how* the application lies, his reader can reap no benefit from it.

Although "W." "lives in a glass house," he invites the returning of the compliment of "displaying an ignorance of one of the most simple and obvious principles of grammar and punctuation." In reciprocating the favor, I will not shoot off at a tangent from the subject into an English fog but will show just *where* and *how* he displays *his* ignorance. In his first paragraph he exhibits an entire "ignorance of the simple and obvious principle of good grammar," that "not" or "neither" should be followed by "*nor*" rather than by "*or*." The word "*or*" implies an alternative or a choice as *this or that*, or the *other*. "*Nor*" rejects all alike—neither *this*, nor *that*, nor the *other*. If this is what "W" means, he has not only an ungrammatical, but an "absurd" way of expressing it. However, he seems to think it "sensible and worthy of consideration," for he insists upon it to the last, ending his rambling criticism by repeating his grand "display" of grammatical accuracy in the use of "or," in place of "nor." It is easy to make a cheap show of learning by mentioning great names and copying nume

ous learned extracts, but it is not so easy to so master even "simple and obvious principles" as to be able to show just *where* and *how* they apply, nor to select a clear and definite subject, and while discussing *it* to keep from straying off "loosely" and talking about everything else.

We have here, however, only another illustration of how easy and common it is for the sharpest critics and best writers to blunder through haste or thoughtlessness.

B.

THE SOCIETY ON THE STANISLAUS.

THE following gem, which we propose to add to the specimens of "scientific poetry" published from time to time in our columns, has been going the rounds for some time anonymously. It is from the graceful and masterly hand of F. Bret Harte, editor of the *Overland Monthly*, and author of the best sketches of California life and manners that have ever made their appearance. Such trifles as this show but a single side of his accomplishments. It is in "The Luck of Roaring Camp," "The Outcasts of Poker Flat," and other prose poems, full of humor, pathos, and exquisite description, that his genius has most delightfully announced itself—unless, indeed, the palm be given to the book notices of the *Overland*, which manifest a subtle intuition of criticism, and a force of satire (where satire is called for) that are not excelled in contemporary literature. But we hasten to reproduce—

THE SOCIETY UPON THE STANISLAUS.

I reside at Table Mountain, and my name is Truthful James ;
I am not up to small deceit, or any sinful games ;
And I'll tell in simple language what I know about the row
That broke up our society upon the Stanislaus.

But first I would remark that it is not a proper plan
For any scientific gent to whale his fellow-man,
And, if a member don't agree with his peculiar whim,
To lay for that same member for to "put a head" on him.

Now nothing could be finer or more beautiful to see
Than the first six months' proceedings of that same society,
Till Brown of Calaveras brought a lot of fossil bones,
That he found within the tunnel near the tenement of Jones.

Then Brown he read a paper, and he reconstructed there
From those same bones, an animal, that was extremely rare ;
And Jones then asked the Chair for a suspension of the rules,
Till he could prove that those same bones were one of his lost
mules.

Then Brown he smiled a bitter smile, and said his greatest fault
 Was that he had been trespassing on Jones' family vault ;
 He was a most sarcastic man, this quiet Mr. Brown,
 And on several occasions he had cleaned out the town.

Now I hold it is not decent for a scientific gent
 To say another is an ass—at least to all intent ;
 Nor should the individual who happens to be meant,
 Reply by heaving rocks at him to any great extent.

Then Abner Dean, of Angel's, raised a point of order, when
 A chunk of old red sandstone took him in the abdomen :
 He smiled a kind of sickly smile, and curled up on the floor,
 And the subsequent proceedings interested him no more.

Then, in less time than I write it, every member did engage
 In a warfare with the remnants of a palaeozoic age,
 And the way they heaved those fossils in their anger was a sin,
 And the skull of an old mammoth caved the head of Thompson in.

And this is all I have to say of these improper games,
 For I live at Table Mountain, and my name is Truthful James ;
 And I've told in simple language what I know about the row
 That broke up our society upon the Stanislaus.

—*Mining Journal.*

EDUCATIONAL INTELLIGENCE.

THE SUMMER EDUCATIONAL MEETINGS.

THE NEW YORK STATE TEACHERS' ASSOCIATION will hold its Twenty-fifth Annual Meeting at SYRACUSE on the 25th, 26th, 27th, and 28th of July. The selection of the place of meeting this year seems eminently appropriate ; because it was at Syracuse, at a general convention of teachers assembled for that purpose, on the 30th day of July, 1845, that this Association was organized. It is the oldest association of its kind in this country, and its career from the first has been one of continued prosperity and usefulness. A programme of the exercises has not yet reached us. A meeting of more than usual interest is anticipated.

In addition to the usual business, there are to be appropriate exercises in celebration of this its TWENTY-FIFTH ANNIVERSARY. At the meeting of 1869 the ex-Presidents of the Association were appointed a committee to make the necessary arrangements. The first President (Prof. Ches-

ter Dewey), and the second (Prof. Joseph McKean) are dead. Consequently the third President (Hon. S. B. Woolworth, of Albany,) is the senior of the Presidents now living. Eighteen in all still survive, and constitute the committee referred to.¹

THE NEW YORK STATE ASSOCIATION OF SCHOOL COMMISSIONERS AND CITY SUPERINTENDENTS has convened, for some years, at the same time and place with the STATE TEACHERS' ASSOCIATION, and we assume that it will so convene this year, though we have had no very clear announcement of the fact.

THE CONVOCATION OF THE UNIVERSITY OF THE STATE OF NEW YORK will celebrate its next anniversary in the capitol at Albany on the 2nd, 3rd, and 4th days of August. The programme will be duly announced.

THE Second Annual Session of the AMERICAN PHILOLOGICAL ASSOCIATION will be held in Rochester, N. Y., commencing July 26th. All persons intending to be present are requested to send notice to that effect, not later than by July 1st, to the Secretary of the Association (Prof. George F. Comfort, Franklin Square, New York City), or to the Secretary of the Local Committee (Prof. A. H. Mixer, Rochester, N. Y.) In accordance with Sec. 1 of Art. V. of the Constitution, persons proposing to read papers before the Association are requested to send copies of the papers to the Secretary of the Association not later than by July 15th.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE will hold its Eighteenth Annual Meeting at

¹ We are informed that no meeting of this committee has yet been called. It is reported, however, that the *fifth* President, the veteran writer of reports for the Board of Education for the City of Brooklyn, has assumed the chairmanship of the committee, and has, without calling a meeting of his associates, decided upon "a part of the exercises," announced that "further particulars will be given in connection with the programme for the Annual Meeting," and "respectfully requests" "anything of interest in relation to the Association, or its officers and members, from its organization to the present," to be sent to him.

Were the evidence less than a circular signed by himself, we should believe that there must be some mistake, because of his reputation as a modest man, always avoiding unnecessary notoriety; and because of his character as a gentleman, ready to respect the wishes of his equals and superiors, unwilling to assume the sole responsibility of directing affairs over which they rightly have, at least, equal control.

TROY, commencing August 17th. The enterprise, for which the Trojans are famous, has already found expression in the appointment of committees of prominent citizens, who are making liberal arrangements for its entertainment. The ALBANY INSTITUTE, an ancient but active literary and scientific organization, has appointed a committee to invite the Association to the Capital City some time during its convention at Troy, and to provide for a suitable reception.

THE NATIONAL TEACHERS' ASSOCIATION will convene in Cleveland, Ohio, on the 17th, 18th, and 19th of August. Among the papers promised, we notice the following: "National University," by Dr. J. W. Hoyt; "Decimal System of Weights and Measures," by James B. Thompson, LL.D. "The Proper Work of a Primary School," by Prof. E. A. Sheldon; "Music in its Relations to Common School Education," by Prof. Eben Tourjee; "The Motives and Means which should be made Prominent in School Discipline and Instruction," by Prof. George A. Chase; "The Relation of the National Government to Public Education," by Gen. John Eaton, Jun.; "The Claims of English Grammar in Common Schools," by J. S. Baker; "The Duty of the State with Reference to Higher Education," by Hon. A. S. Kissell; "The Use and Abuse of Text-books in Schools," by Z. G. Wilson; "Free Common Schools, what they can do for a State," by Hon. F. A. Sawyer; "An Address by President Charles W. Elliott." Special arrangements for railroad tickets are expected to be made, and will be duly announced. The efficient President of the Association, Daniel B. Hagar, is active in developing every plan possible for the profit of the Association.

THE AMERICAN NORMAL SCHOOL ASSOCIATION is to be in session at the same place, August 15th and 16th. Addresses will be delivered by the President, John Ogden, William F. Phelps, Richard Edwards, George B. Loomis, J. L. Pickard, A. G. Boyden, J. W. Dickinson, S. H. White, and George M. Gage. A paper on "The Place and Value of Object Lessons" is promised by Miss Delia A. Lathrop and one on "The Treatment of Dunces," by Miss Fanny M. Jackson. This meeting promises to be a good one.

THE NATIONAL SCHOOL SUPERINTENDENTS' ASSOCIATION will hold a business meeting at Cleveland, O., on the afternoon of August 16th. No programme will be issued.

THE AMERICAN INSTITUTE OF INSTRUCTION will hold its forty-first Annual Session in Worcester, Mass., on the 26th, 27th, and 28th of July.

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THE action of the Publishers' Board of Trade will probably make the absence of the Book Agents a marked feature of the Educational Meetings of this summer. How this may affect the liveliness and interest of the several conventions remains to be seen.

MISCELLANEA.

RUTGERS COLLEGE, New Brunswick, N. J., celebrated its centennial anniversary June 21st. This college is enjoying most gratifying prosperity. Liberal sums have been recently subscribed for important endowments.

BROWN UNIVERSITY had its 102nd commencement on the 29th of June.

RUSSIA has nine Universities, all under the care of the Government. The largest, that of Moscow, has 75 professors and 1,600 students.

PROF. W. B. GRAVES, late of Phillips Academy, Andover, has entered upon his duties as Professor of Natural Sciences in Marietta College, Ohio.

PROF. B. F. TWEED, of St. Louis, formerly of Tufts College, succeeds Rev. J. H. Twombly as Superintendent of Schools in Charlestown, Mass.

ACCORDING to the recent report of Abner J. Phipps, Agent of the Mass. Board of Education, there are now 175 high schools in the State, two of which are under the management of ladies. The amount expended last year in erecting school-houses was \$1,037,388.

FIVE Japanese noblemen have recently entered Rutgers College, New Brunswick, N. J.; and two Siberians have been admitted to Cornell University.

PROF. G. F. COMFORT has resigned his chair at Princeton, to devote himself to the preparation of his text-book.

PROF. GUSTAVUS FISCHER is about to publish, through Mr. Steiger, the well-known German publisher of New York, a grammar to aid Germans in mastering the English. He will deserve no mercy from the reviewers.

THE Professor of International Law in the University of Oxford is about to publish a work, entitled *Historical Account of the Neutrality of Great Britain during the American Civil War*. On this subject we are inclined to say *jam sat*.

PROF. LIEBIG has received the Albert medal from the Society of Arts, Trade, and Manufacture of Great Britain. This is considered a great distinction, as only one such medal is awarded annually, and this is the first that has been awarded to a German.

THE poet Whittier has been elected a trustee, and Prof. Elliott Blake of Cornell University, Hazard Professor of Physics, of Brown University.

GEN. JOSEPH E. JOHNSON has accepted the Presidency of Nashville University, and friends of the University have raised \$25,000 by subscription to pay his salary during the next five years.

COL. HOMER B. SPRAGUE, Professor of Rhetoric, etc., of Cornell University, has been elected Principal of Adelphi Academy, Brooklyn, N. Y., at a salary of \$6,000 per an.

WHEN at college, Surtees was waiting on the Dean on business, and, feeling cold, stirred the fire. "Pray, Mr. Surtees," said the great man, "do you think that any other undergraduate in this college would have taken that liberty?" "Yes, Mr. Dean," was the reply; "any one as cold as I am!"

MR. WM. H. APPLETON, the publisher, has given \$10,000 to an orphan institution at Macon, Ga.

HARPER & BROTHERS employ forty-five steam presses, of which thirty-four are book presses. They used last year \$600,000 worth of paper.

IVISON, BLAKEMAN, TAYLOR & CO., the well-known Educational publishers, have removed to a new and elegant store, 138 and 140 Grand street, N. Y. The fact that they manufacture each day of the year 12,000 volumes of their books will enable one to appreciate the immensity of their business.

AT a recent examination of Teachers in Rhode Island (probably in the town of Foster), the "committeeman" gave

somewhat impatient, and exclaimed, "Miss Potter, we know very well that A, B, C, and D are *vowels*, but we must insist that you explain *why* these letters are vowels."

JOHN H. FRENCH, LL.D., of Albany, N. Y., has been elected Secretary of the Vermont Board of Education—an office equivalent to that of "State Superintendent of Public Instruction." Dr. French is well known as a teacher and author, as well as a conductor of Teachers' Institutes. In this latter capacity he has done veteran service, and has no superior. Vermont has done well to secure him.

PROF. JAS. JOHONNOT has recently been holding Teachers' Institutes in Westchester and Dutchess Counties with good success. Besides his work in New York, this gentleman has conducted several series of Institutes in other States: Vermont, New Hampshire, and Rhode Island.

PROF. D. H. CRUTTENDEN has been holding Teachers' Institutes in Maine. We learn that the remarks concerning Prof. C.'s "inevitable discourse" "On Language," at Ithaca, last year, did that gentleman injustice. His address was a new one, prepared for the occasion, and candid hearers have pronounced it an excellent address. It is not easy to find a more earnest educational worker than D. H. Cruttenden.

THE DELTA PHI FRATERNITY held a general Convention at Schenectady, N. Y., June 15th, 16th and 17th. Delegates were present from all parts of the United States.

CURRENT PUBLICATIONS.

A BOOK is offered by Mr. Randall¹ "for the use of Common Schools, Academies, Normal and High Schools, and other Seminaries of Instruction," "in the confident hope that the work may be found worthy of adoption;" and notwithstanding occasional inaccuracies of expression (as in the instance above quoted—"seminaries of instruction," in place of *seminaries of learning*), it may be found desirable to adopt it. Yet it should be used only in default of a better book, and used with great care. For while the book is the fruit of a praiseworthy attempt, it is but gnarly fruit, or, at the best, insipid.

The author has given what seems to be a truthful record of the changes which took place in the administration of the government of New Amsterdam and New York, from the days of the Iroquois, through the period of the Knickerbockers, the British Colonial era, the time of the Confederation, and that of the United

¹ HISTORY OF THE STATE OF NEW YORK. By S. S. RANDALL. New York: J. B. Ford & Co. 370 pages, price \$1.75.

States, to January, 1870, together with brief, but sufficiently full, mention of the battles of the old French war, the war of the Revolution, and that of 1812. And for the various terms, between the time of the adoption of the State Constitution and the present year, he has given with conscientious, but we suggest most unnecessary, minuteness the names not only of President and Vice-President, Governor and Lieutenant-Governor elect, with their respective majorities, but also of Senator and Secretary, Comptroller and Attorney-General, Judge and Committeeman.

Now all this, we submit, is a little husky. All such information may be desirable to have, and some of it perhaps should be printed in school-books. But, in dealing with the growth from infancy of this great Commonwealth, we want something more than this. We want to be made better acquainted with the early settlers; we want to know something of the modes of life, the habits, and the aspirations of the mingling races; to follow them, as, spreading outward from Manhattan Island over the broad territory of the State, they explored and subdued it. We want to know more of the changes which took place among the people, and not so exclusively those which were made in the Executive Chamber.

These things, it seems to us, should be traced in a history of the State, which is intended to aid in the formation of good citizens, and of these things, though Mr. Randall has said something, he has said very little.

TEACHERS' INSTITUTES, within the last few years, have become powerful auxiliaries to the cause of education. That they will accomplish more and more good is unquestioned. Systematic instruction will be more generally introduced at these gatherings, and Teachers will thereby be the greater gainers. Mr. COLE's new book² is a decided step in the right direction. Hitherto no one work has been obtainable to afford the complete variety of exercises, in different grades and styles, required in presenting to Teachers the important subject: "How to Teach Reading."

Part I. contains practical directions to primary Teachers, followed by exercises from the Primer and First and Second Readers. Part II. continues the directions, and contains a Manual of Articulation for drill purposes, and a series of reading lessons from the Third, Fourth, and Fifth Readers. Part III. is a complete Reader for advanced classes, and furnishes those who desire to pursue the study of Elocution without a master, with the necessary instructions and exercises for self-training. Part IV. instructs those who lack experience in such organizations, to call the teachers of the county together, and to form and conduct a successful Institute.

The author has given us a novel and very useful book; and its publishers, too, have done their part exceedingly well.

THE ECLECTIC EDUCATIONAL SERIES, by Messrs. WILSON, HINKLE & Co., of Cincinnati, Ohio, has recently had three important volumes added to its already extended list. I. A treatise on GEOMETRY and TRIGONOMETRY, for colleges, schools, and private students, written for the mathematical course of Dr. Joseph Ray, by Eli T. Tappan, professor of mathematics in Ohio University. II. A treatise on ANALYTIC GEOMETRY, especially as applied to the properties of Conics,

² THE INSTITUTE READER AND NORMAL CLASS-BOOK, for the use of Teachers' Institutes and Normal Schools, and for Self-training in the Art of Reading. By WILLIAM H. COLE. 360 pages, 12mo., price \$1.25. Cincinnati: Wilson, Hinkle & Co.

cluding the modern methods of abridged notation, written for Dr. Ray's mathematical course by George W. Howison, professor in Washington University. III. The ELEMENTS of ASTRONOMY, for Ray's course, by Selim H. Peady, teacher of the natural sciences in the Chicago High School.

MESSRS. HARPER & BROTHERS, Franklin Square, New York, have, as usual, a large list of new books for the month. I. THE LIFE OF BISMARCK, private and political, with descriptive notes of his ancestry, by JOHN GEORGE LOUIS HESSELT, translated and edited, with an introduction, explanatory notes, and appendices, by KENNETH R. H. MACKENZIE, F. A. S. L. It has an excellent portrait, and upwards of one hundred illustrations, by Diez, Grimm, Pietsch, and others. 300 pages. II. CHRISTIANITY AND GREEK PHILOSOPHY; or, The Relation between Spontaneous and Reflective Thought in Greece and the Positive Teaching of Christ and His Apostles. By B. F. CROCKER, D. D., professor of moral and mental philosophy in the University of Michigan. 532 pages. III. Memoir of the REV. JOHN SCUDDER, M. D., thirty-six years a missionary in India. By W. J. B. WATERBURY, D. D. With a portrait of Dr. Scudder and his Wife. 308 pages. IV. MISS VAN KORTLAND, a Novel. By the Author of "My Daughter Dorcas." Paper covers, 180 pages, price \$1 00. V. BAFFLED; or, Michael and his Wrong. By JULIA GODDARD. Illustrated. Paper covers, 160 pages, price 75c. VI. BENEATH THE WHEELS, a Romance. By the Author of "Olive Thorne." Paper covers, 173 pages, price 50c.

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PROF. WHITNEY'S COMPENDIOUS GERMAN GRAMMAR.³

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PAGE 58 (§ 159, 5), we read the remark :

Mein ic. used predicatively, assert ownership pure and simple. Thus: *ber Hut ist mein*: the hat belongs to me, and to no one else. *Meiner*, *ber meine* and *ber meinige* are wholly equivalent expressions combining with the idea of property an implication of the character of the thing owned. Thus: *es ist meiner* etc.: it is my hat, and no one's else. *Der meinige* etc., are most common in colloquial use; *ber meine* etc., are preferred in higher styles.

These statements are in many respects incorrect. The difference between the inflected and uninflected possessive forms cannot be expressed in terms so vague, out of which the student may either make everything or nothing, and which evidently miss the main point.¹ Nor do the two examples, alleged by the author, serve in the least to explain what he means. One of the examples is, moreover, grammatically incorrect; for we cannot say: *er (der Hut) ist meiner*.² Nor are *meiner*, *ber meinige* and *ber meine* "wholly equivalent expressions."³ Nor is the author correct when he says that *ber meinige* etc., are most common in colloquial, and *ber meinige* etc., in higher style.⁴

In the paradigm of the interrogative pronoun *was* (page 63), the genitive is given in brackets, as "[*weß*]," with the remark that it is hardly met with except in the compounds *weßwegen*, *weßhalb*.⁵ But the regular genitive *weßsen* is entirely omitted.⁶ In the same section we are informed that *was* has no dative, and that if it is governed by prepositions, prepositional adverbs with *wo* must be substituted. But we are not informed by what means we supply the dative of *was* if no prepositions are admissible.⁷

On page 76, No. 5, a, we read the rule, that after nouns denoting measure, quantity, etc., the substantive following is usually put neither in the genitive (*partitive genitive*), nor in the dative with *von* "of," but stands "as if in apposition" with the other. That this is not so, the author might have seen from phrases like the following: *mit einer Schwabron Reiter*, *mit einer Menge Kinder*, *aus zwei Meßen Korn*, in which the nouns *Reiter*, *Kinder*, *Korn*, if they were in apposition, would agree with their governing nouns in the dative case. There can be hardly any doubt that what the author calls nouns, "as if in apposition," are nothing but former genitives (in Old German they have their full inflections) that have lost their inflectional endings. If the author does not agree with this opinion, although we think it is now generally adopted, he ought to have said, at least, that substantives following nouns of quantity, etc., are *indeclinable*; for representing these forms as "appositions" will mislead the student. We have missed in this section the peculiar construction of substantives connected with the nouns

¹ The two cases differ by the difference of their *predicates*. The uninflected *mein* etc., as a predicate, always means *my*, etc., *property*; as: *Die Kraft und die Herrlichkeit ist Mein*. Lord's Prayer. — *Die Herzen von Genua sind mein*. Schiller, *Fliesco* 2, 19. — *Das Thomasthor ist unser*. Ib. 178. The inflected forms *ber meinige* etc., are not themselves the predicates, but its *attributes*, and the predicate proper is here always a noun understood, which may or may not be the subject. These forms are principally used to compare things of different owners. Thus the examples alleged by the author (§ 159, 4): *Sein Richterstuhl ist nicht der meine* (Zeffing, *Rathan* 3, 7), which does not mean "his judgment-seat does not belong to me," but "His judgment-seat and mine are not the same." Thus: *Reine Begriffe sind nicht ganz die Ihrigen*. Schiller, *Geb. u. L.* 1, 7, and innumerable other passages.

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⁵ As: *Esprecht, wessen soll man sich zu euch versehen?* Schiller, *Teil*, p. 130. *Doch wessen rühmen wir uns von dem Sohn?* Ib. Page 160.

⁶ For instance, in phrases like the following: "To what do you ascribe this?"

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³ Thus: We cannot change: *Im Vaterland willst du die meine werden* (Schiller, *Teil* 87) *willst du meine werden*; nor: *Ich habe das Meinige gethan* into *ich habe Meines gethan*.

⁴ Neither *der meinige* nor *der meine* are quite colloquial, except in proverbs, in which the form *meine* etc., are decidedly more frequent; as: *Gieb Jedem das Seine*. In colloquial style, the forms *meiner* etc., are more usual; while in higher style, the forms *der meinige* etc., and *der meine* are of equal frequency. According to Grimm (*Lexicon* s. v. *betn*), the forms *der meinige* are even more frequent than the others.

⁵ As: *Sprecht, wessen soll man sich zu euch versehen?* Schiller, *Teil*, p. 130. *Doch rühmen wir uns von dem Sohn?* Ib. Page 160.

⁶ For instance, in phrases like the following: "To what do you ascribe this?"

„die Fülle“ and „die Menge“, as *Weizen die Fülle*, a plenty of wheat. The explanation of this construction, as in „*Der Herr trinkt die Felsen mit Wasser die Fülle*, Psalms 78, 15“, would seem rather difficult for a beginner.

On page 83 (§ 225) the author says:

The use of the dative as a virtual possessive genitive, grammatically dependent on a verb, but logically qualifying a noun, has been explained above (222. III. a, b).¹ RARELY, the dative is found having the same value with a noun alone²: as, *dem Riesen zur Lust*, 'for the giant's pleasure'; *er gab, ihm zu Ehren, manche Feste*, 'he gave many festivals in his honor.' YET MORE RARELY, it occurs with a noun in other relations usually expressed by a genitive,³ or with the aid of a preposition: as, *ein Muster Bürgern und Bauern*, 'a model for citizens and peasants'; *Gewißheit einem neuen Bunde*, 'assurance of a new covenant.'

To this statement apply all remarks in our first article on the abstract nature of the author's rules, when he makes them mere accessories to certain principles which are neither true nor clearly stated. It would have been far preferable here, if the author had simply quoted his alleged phrases as idiomatic German constructions, similar to those which he calls "datives being virtually possessive genitives." For the beginner cares very little (and hardly would understand it if he did), whether such datives logically or grammatically depend on verbs or nouns. But if the beginner should succeed in grasping the author's meaning, he would feel sadly disappointed, when arriving at the alleged examples, in which just the very point is concealed by which this case is distinguished from the case treated in § 222. For the author has torn them from their connection, withholding the governing verbs, so that no one can see whether their datives depend on the verb, or on "the noun alone." The first of his examples is taken from Chamisso, and completely reads thus: *Heim kamen die Starren dem Riesen zur Lust*, *home came the steers to the giant's joy*. The third example is taken from Goethe's *Faust*: *Der Gesang klang — Gewißheit einem neuen Bunde*, *the song sounded assurance to a new covenant*. The last is from Goethe's *Hermann and Dorothea*: *Er ist — ein Muster Bürgern und Bauern*, *he is a pattern to citizens and peasants*. Every one reading the sentences thus will at once see that the datives contained in them, depend just as much (or as little) "grammatically" on the verbs as those examples which he quotes § 222, III, a, b.⁴ The second example even "logically" depends on the verb *fliegen*, for which compare § 227, b, of the author's own grammar, and the sentence „*Es tönt die Glode Grabgesang*“, alleged by him at that place. That indeed his datives „*dem Riesen* &c.“ do not depend on the nouns *Lust* &c., will be evident if we omit the preposition *zu* and consider *Lust* as a nominative. It will then appear that the words „*dem Riesen die Lust*“ stand in no grammatical connection whatever. Thus, whether the author's theory is true or not, it is certainly not upheld by his examples. When he calls phrases like „*dem Riesen zur Lust*“ a *rare* construction, he is mistaken. These constructions occur in passages literally innumerable.

Page 84 gives a theory of the accusative, at the head of which is placed the rule that all *transitive verbs govern the accusative, and that transitive verbs are those that take a direct object in the accusative*. The author acknowledges that this theory is "rather formal than logical" (§ 227); why, then, use it? But he adds in the same section that the accusative is also "sometimes" used as the object of "intransitive" verbs, which seems clearly to prove that "verbs governing the accusative" and "transitive verbs" are not interchangeable terms. To what consequences the author has been led by this theory appears for instance from the fact that he calls „*es gelüstet mich*“ a *transitive* (§ 219, 4),

¹ Here the author remarks: A dative grammatically dependent on the verb takes the place of a possessive genitive qualifying a noun in the sentence: thus, *der Amme um den Hals fallend*, 'falling upon her nurse's neck'; *legte den Müllner der Mait in den Schooß*, 'lay Müllner in the maid's lap.'

² He evidently means "grammatically dependent on a noun," since he opposes this to "logically qualifying a noun."

³ What the author means by this clause, and why he has opposed this case to the former, is not clear, since the datives in both sets of examples evidently have the force of possessive genitives.

⁴ That the author makes in the example „*Der Amme um den Hals fallend*“ the dative „*der Amme*“ grammatically dependent on *fallend* (as if *fallen* governed a dative), while in the examples, mentioned above, he denies that the dative „*dem Riesen*“ grammatically depends on *heimkamen*, is more than we can understand. We beg to suggest to the author some examples which would seem to sustain his theory perhaps better than those chosen: *Nich soll ehren ein herrlicher Hügel — den Völkern und künftigen Zeiten ein Denkmal*. Goethe, *Achilleis*, p. 96. — *Dir zur Ehre mißgehorche ich dir*. Blain, *Rathilde v. Balois*, Act I.

that the construction of verbs governing two object-accusatives cannot be changed into a passive one.

The author's treatment of compound verbs (p. 131—140) is open to great objections. First it is neither clear nor logical. He divides the compound verbs into four classes: 1) separable compounds, 2) inseparable, 3) partly separable, partly inseparable, 4) "other" compounds. This fourth class is again subdivided into four categories: a) true compounds, b) false or loose compounds, c) denominatives, d) the compounds of *miß* and *voll*. The fourth class appears altogether arbitrary, for the author reckons among this class "verbs compounded with other adverbs than those *already mentioned*," which is certainly no principle of division at all. And indeed all of these subdivisions belong to the one or the other of his first three classes. For his "true compounds," the denominatives and those with *miß*¹ (*handhaben*, *lieblosen*, *frühstücken* &c.) all belong to the second class (inseparables); his false compounds (*stattfinden*, *loßsprechen* &c.) belong without exception to the first class (separables), and those with *voll* to the third class. Not much better is the author's treatment of the single classes. Thus he enumerates in the list of separable particles the prefixes *entzwei*, *empor*, *heim*, along with the prepositional prefixes *an*, *auf*, *durch* &c. These evidently belong to what he calls "loose or false compounds" (for inst. *loß*, *möhl*). For there is no principal difference in the treatment of the verbs *loßgehen* and *heimgehen*. The words *wider* and *hinter* stand among the separables, while they evidently belong to the inseparables (see Grimm, II., 870 foll. Becker, p. 145. The contrary statement of Heyse, regarding *hinter*, is erroneous). The word *in* stands among the separables, but is found only in the single verb *inmohnen*, which is a mere abbreviation of *innemohnen*. This ought to have been stated in a remark to the particle *inne*, which is enumerated along with *in*.² The treatment of the whole subject is not practical enough. For in spite of the author's division into 7 classes, the student will not be able to obtain a clear idea in regard to the treatment of those compound verbs which have several prefixes (these causing the main difficulty). His treatment of those prefixes which are sometimes separable, and sometimes inseparable, is altogether perplexing. He has fallen here into the common error of most grammarians to illustrate the use of these compounds by certain verbs which in some significations are separable and in others inseparable. Nearly all of these verbs in reality exist only as *inseparables*, and their use as separables is either objectionable, or exists only in the fancy of some grammarians. The author employs for this purpose the verbs *durchbringen*, *hintergehen*, *übersetzen*, *umgehen*, *unterwerfen*, *wiederholen*. Of these the verbs *hintergehen* and *unterwerfen* are no separables at all; *übersetzen* as separable verb is quite unusual, and can only be used without objects. *Durchbringen* and *umgehen* are most unfortunately chosen, since they flatly contradict the author's own principle, according to which the separable verb has a literal, and the inseparable a figurative meaning, while in regard to *durchbringen* (prevail—penetrate) and *umgehen* (to associate—to go around) just the contrary is true. But the worst is that all these verbs stand, as it were, only on paper, the author not having seen fit to illustrate their usage by a solitary example, which in *this* subject obviously was the main thing. Moreover, the student should have been told that of all these "ambiguous" prefixes only *durch* is generally used in both senses (as separable or inseparable), but that the other prefixes of this category are mostly used *inseparably*; while *wieder* is used only separably, except in the word *wiederholen*. This would considerably diminish the difficulty and would be sufficient for all practical purposes.

The author's treatment of the subject is, also, *incomplete*, notwithstanding its explicitness. Thus he is anxious to show the "further" composition of compound verbs, and to teach the student which of the two prefixes is the first in time and which is of later origin; but of what use will be such knowledge to a beginner, who has yet no idea of even the simple verbs?

¹ The author says indeed that the compounds with *miß* are rarely treated as *separables*; but this is an evident mistake. We cannot say (even in poetry) *er versteht mich miß* &c. Although we sometimes find *mißgeachtet*, we never find: *er achtet miß*. Becker, p. 145.

² The preposition *in* never is used as a prefix of a verb; but instead of it either *inne* (*Intus*) is used, or *ein* (*Intro*).

the author says, but to er würde es nicht gethan haben, and would seem to prove exactly the contrary to what he meant to prove by it. The German er wollte es nicht gethan haben' does not mean 'he was not willing to have done' but 'he pretended not to have done it' (he denied that he had done it). In the same way the author is mistaken when he says that his second example 'he might have come' cannot be translated by er konnte gekommen sein. We unquestionably can translate the quoted English phrase in this manner; but it means something different from er hätte kommen können.

On page 116, speaking of the vowel-changes in the second and third persons sing. of some "strong" verbs, he says: *The a remains unchanged in schaffen and fallen and sometimes in laden and mahlen.* This is an error. The vowel-change of mahlen is obsolete, and of laden very rare. Moreover, mahlen does not belong here at all, because it forms a weak preterit (mahlte), the form muhl being altogether obsolete. If the author reckons mahlen to the strong verbs on account of its participle gemahlen, it would have been necessary to except also the verbs falten, salzen, spalten, which likewise have strong participles, but do not change the a in the present. That baden and braten often refuse the vowel-change (although they often form strong preterites) has been entirely omitted. In § 268, 3 he mentions erlöschen, as changing ö into i. But so does löschen with all its compounds, if used intransitively (as das Licht löscht — not lösch — aus).

The author on page 124 has enriched the language with a new passive participle „geliebt worden“ in the paradigm. It is true, he adds „geliebt worden“ is used only in forming the compound tenses. But this is another mistake. For of the two participles which we find in the compound tenses of the passive, the one is that of the auxiliary (ich bin worden), the other that of the principal verb (geliebt). If geliebt worden were a participle of lieben, as he supposes, the auxiliary of the passive would not be werden, but sein (ich bin — geliebt worden). While he thus invents a non-existing passive participle, he leaves out the true passive participle geliebt, which he refers to the active voice. From this it would evidently follow that the participle besiegt in the phrase „ein besiegter Feind“ (a vanquished foe) must be an active participle. But this does not disconcert the author, for in another part of his book he has introduced the following rule: *The past participle of a transitive verb has "passive meaning"* (§ 351); and this is the very reason why it should have been in the paradigm of the passive. His rule would then have been superfluous.¹ In accordance with this peculiar dogmatic tendency he gives in the paradigm of the reflexive verb a participle „sich gefreut,“ which has no reality whatever, but is a grammatical enormity.

According to §§ 280 and 227, 3 the author would form the following startling passive constructions: „Er wurde seinen Namen gefragt; ich wurde einen Besuch gebeten.“ It is true that he does not expressly give these sentences (the rule being left destitute of examples), but they would be correct according to the author's rules. For he says:

§ 227, 3: A few transitive verbs govern two accusatives. They are fragen,² lehren,³ bitten, which add to their personal object another denoting the thing to which their action relates: thus er fragte mich manches, 'he asked me many a thing;' ich bitte dich nur dies, I beg of thee only this.—§ 280, 1: Verbs which govern two accusatives (227, 3) except lehren, take in the passive the second accusative either as object (fragen &c.), or as predicate nominative (nennen &c.).—Examples wanting.

From these rules the passive constructions mentioned above would be clearly correct. We need not add that the second rule is erroneous, and

¹ The author seems to have been induced to consider geliebt as an active participle by its use in the active compound tenses. But he must acknowledge (page 97 No. 4) that "I have stretched out my arms" originally means "I have my arms stretched out," which seems to make it clear, that this participle is indeed a passive, and assumes an active meaning only in connection with the auxiliary *haben*.

² The author ought to have remarked that this construction is not the regular one. The object or which we ask must generally be connected by a preposition.—³ He should have remarked that lehren is also construed with a dative of the person. The question, which of the two constructions (accusative or dative) is the correct one, is so doubtful, that it was some time ago, in consequence of a wager, submitted to legal decision (in the Berlin City-Court). The Court heard the testimonies of the best German scholars under oath. Their opinions were equally divided, two declaring the active, and two the accusative to be the right case; but all agreed that either construction was sustained by our best classical authors. These opinions are published, and completely exhaust the subject. The judge, himself a German scholar, declared the matter to be so doubtful, that he could not decide the question.

pleasure to, *sich freuen*, to feel pleasure; *fürchten*, to fear, *sich fürchten*, to be afraid." ¹ His treatment of the verb *vertrauen* (p. 142, § 818, a) shows this ~~St. Ill~~ more strikingly. He says: *wir vertrauen uns auf ihn*, *stands for wir vertrauen ihm*, *we trust in him*. This is doubly wrong. First, "*wir vertrauen uns auf ihn*" is no German at all; it ought to be: *wir vertrauen auf ihn*; and then, "*wir vertrauen uns ihm*" does not mean 'we trust in him,' but "we entrust ourselves to him."

That the author has mixed up both theories of reflexive verbs, appears from his very first paragraph (283). The first section "*a reflexive verb is one that represents the action as exerted by the subject upon himself*" is evidently based on the theory that every verb with a reflexive object is a reflexive verb, for it embraces not only such verbs as *sich tödten* (to kill one's self), but also verbs that require an object in the dative (as *ich erlaube mir*, I allow myself). But in the second section of the same paragraph we read: "*Such verbs are grammatically transitive, since they take an object in the accusative.*" By this clause all verbs, governing a genitive or a dative, are excluded from the number of reflexives, which can only be explained, if Becker's theory is adopted. But the author must have become aware that there are nevertheless reflexive verbs governing the dative, and so he proposes in the last paragraph of the chapter (§ 290) a middle theory: "*A small number of verbs are used with a reflexive object in the dative in a manner quite analogous with the true reflexive verbs, and therefore form a class of improper reflexives.—Most of these require in addition a direct object in the accusative: thus, ich mache mir kein Unrecht an, 'I make no unjust claim;,' ich bilde mir das nicht ein, 'I do not imagine that.'* But *sich schmeicheln* 'flatter one's self,' is intransitive. It is rather remarkable that the author did not notice, how completely his theory about the transitive nature of reflexives is killed by these statements. For if all reflexives are transitives according to their nature, none of them can be intransitive.

In the other sections of this chapter the terms "transitive" and "intransitive" are applied with various force and meaning to the reflexives. After saying that all reflexives are grammatically transitive, and logically intransitive, he states that any transitive verb in the language may be used reflexively, as if not all verbs governing the genitive or dative might be just as well used "reflexively." Then we learn that an intransitive verb is "much more often" used transitively with a reflexive object than with one of another character (§ 288), and finally, that an intransitive reflexive is sometimes used impersonally (*es tanzt sich hier gut*).

The principal interest which the student has in the chapter on reflexive verbs is evidently: 1) To know in which case⁴ to place the reflexive. This can not be learned from the author's rules, by which the student will be induced to commit the worst grammatical blunders (as: *ich gebe mich Mühe*, I take pains—reflexive verbs, according to the author, taking their objects in the accusative); 2) to know the instances in which English neuter verbs must be translated by German reflexives, which is not imparted by the author, though it might be taught in a few words. Thus the student would not learn by the author's grammar how to translate into German such simple phrases, as: The earth moves (*die Erde bewegt sich*); the heat increases (*die Hitze vermehrt sich*). While, then, the student does not learn the plainest elements, he is taught

would not be a reflexive in the sense of the author; for if *freuen* means 'to give pleasure to some body,' then *sich freuen* must mean 'to give pleasure to one's self' (or to feel pleasure).

¹ We are afraid (*wir fürchten*—not *wir fürchten uns*) that we must even here contradict the author; and that we are right, he will see from our use of the verb *fürchten* in the beginning of this sentence.

² The number of these verbs is by no means small. If it were so, the author ought to have enumerated them all, since the student must learn to use the correct case with reflexive verbs. I mention here only a small part of these reflexives: *sich widersprechen*, *sich erlauben*, *sich geloben*, *sich gestatten*, *sich gestehen*, *sich etwas ausreden*, *sich verhehlen*, *sich etwas erklären*, *sich etwas versagen*, *sich versprechen*, *sich aneignen*, *sich angewöhnen*, *sich es versehen*, *sich etwas zu Gute thun*, *sich etwas au benken*, *sich etwas bekommen lassen*, *sich Rath wissen*, *sich etwas ausbitten*, *sich zu schaffen machen*. But there are many more.

³ If what the author says is true, namely that all reflexive verbs are logically intransitive and grammatically transitive, it will be very difficult to connect any sense with the expression "*transitive reflexive*." It is either pleonastic or contradictory to the rule.

⁴ The author very peculiarly says that a reflexive pronoun takes the gender of its subject (§ 29), forgetting that the reflexive pronouns are not distinguished in gender at all.

the and hollow theory, illustrated by the most unusual and, as they stand, doubly intelligible phrases, such as: *Es sieht sich gar artig in die Kutschen hinein*, 'very pretty looking into the carriages (§ 288, 2).

What is said of the author's treatment of reflexive verbs, applies in a still higher degree to his treatment of the SUBJUNCTIVE (p. 148—154), a subject which has generally received a pretty rough handling from our grammarians (Germans not excepted). He has here more details than we generally find in other grammars; but they are not always correct and often obscure and fragmentary. Some of the most important rules are left out, while some of the most unimportant particulars are presented. Many of these latter are grouped under certain general principles,¹ while some are not assigned to any, and seem to occupy their respective places only by chance.² This looseness seems to have sometimes led the author to using faulty subjunctives, or to considering as subjunctives what are unmistakable indicatives.³ He classifies all special rules under three heads: 1) the subjunctive as optative; 2) the subjunctive as conditional and potential; 3) the subjunctive of indirect statement.⁴ The OPTATIVE-subjunctive, according to the author, is a present subjunctive expressing a wish, request or direction (§ 381, 1). He limits this subjunctive to the third persons of both numbers, and the first plural; for the first singular requires *möge* 'may' as auxiliary, which auxiliary he also admits for the other persons. Here the author seems to have forgotten Mephisto's reply in Goethe's *Faust*: *Gesteh' ich's nur, daß ich hinausspaziere* &c. (let me confess, etc.) 'is the auxiliary "möge" always allowed as substitute for the optative, as: *laß uns hören, was er zu sagen hat*, let us hear, etc., where we may substitute *lassen* for *mögen*. Nor is *mögen* always used in the subjunctive, as he requires, indicative *mag* being more frequent (*Der Mensch mag unternehmen, was es ihm beliebt* &c. Goethe, *D. u. W.*, 4, 153). He states (p. 149, d. e.) that this subjunctive sometimes becomes in application concessive, or expresses a supposition or assumption, and "hence" it becomes with *benn* by an elliptical construction equivalent to "unless;" thus, *Wiedererwerben soll ihn keiner, er führe benn Freya Braut mir heim* (nobody shall acquire it again, unless he bring me home as bride) i. e. [if he would gain what he wishes] then let him bring, etc.;" interpretation, devised by the author himself, and which we are afraid will have but few endorsers.⁶

Thus he takes the subjunctive in this sentence, *ich wäre fast gegen Baumstämme gerannt*, I came running against trunks of trees (p. 151, 3, a) for one of those subjunctives that are used to soften the positiveness of an assertion, where the author seems to have been misled by the English translation. This subjunctive is *hypothetical* (expressing in an affirmative form something contrary to fact), and the word *fast* has the force of an hypothetical clause (if I had gone on so, or the like). On the other hand he takes the phrase *laß mir das Herz, daß ich das eure rühre* (relieve my heart that you move yours), p. 152, 5, b. for a species of hypothetical subjunctive, since he had no general category to which he might have assigned a subjunctive of PURPOSE.

This is especially the case with the subjunctive in concessive clauses, which he sometimes considers as real conditionals "only modified by various causes" (*und wären von Gold sie, ich gäbe sie ihnen*, p. 150, d); sometimes as "occasional phrases" analogous with the hypothetical clause (*es wird gesamt, wäre es nur mit einigen Kutschen*, p. 151, No. 4); sometimes as "akin with the potential" hypothetical uses of the subjunctive (*wie auch der Menschliche wankt*, p. 152, 5, a), and sometimes even as optatives (*er thue was er wolle*, p. 149, § 381, d). In the last phrase he attempts to interpret the first of the two subjunctives, while the subjunctive *wolle* remains unexplained, and the student would search the author's grammar in vain for an explanation.

We have already seen that the author has among his exercises the sentence, *was er gebe, wissen nicht*, in which the faulty subjunctive seems to be owing to his insufficient treatment of the subjunctive of "indirect statement" and to his ignoring the important rules on the use of the indicative in indirect questions (Becker, § 241, p. 429).—Page 152, No. 5 he declares the clear indicative *versen* to be a subjunctive in the following sentence: *Er mußte bleiben, bis die Fluten sich versen*, he was compelled to stay till the water subsided, the author incorrectly translating: "till the loud should subside."

In his introductory remarks he naively says that the tenses of the subjunctive require no separate treatment since the distinctions of tense in the subjunctive are of only subordinate value. The student may consider himself justified in substituting a pluperfect subjunctive for a present perfect, and either of these tenses for a future!

The author has left out this first part of the sentence, taken from his Reader, although without it, the sentence could not be understood.

The true meaning of this construction of the subjunctive with *benn* (unless) is illustrated by *niemand benn ich* (Lex. v. bann). This meaning of *benn* (formerly *bann*) is related to the meaning of *benn* or *than* after comparatives instead of *als*, and exactly corresponds to its Middle German meaning, "except" as: *Niemand benn ich*, no one except myself. Prof. Whitney's interpretation is erroneous because according to him, *benn* would be merely expletive, and the subjunctive would have no force, while evidently *benn* is the essential word, and the subjunctive unessential, since the optative was formerly likewise used in this construction; b) because the author assigns the con-

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³ If what the author says is true, namely that all reflexive verbs are logically intransitive and grammatically transitive, it will be very difficult to connect any sense with the expression “transitive reflexive.” It is either pleonastic or contradictory to the rule.

⁴ The author very peculiarly says that a reflexive pronoun takes the gender of its subject (§ 294), forgetting that the reflexive pronouns are not distinguished in gender at all.

so. We infer from this definition that the POTENTIAL subjunctive always implies a condition, but "less explicitly" than the CONDITIONAL subjunctive, i.e. the condition must not be implied even by a single word; else the subjunctive would be "conditional." Hence he cannot mean anything else, but that the implication of the condition should appear from the connection alone. Unfortunately, however, all the examples given are torn from their connections; nor does he inform us what those conditions are that he means to supply. Thus he has deprived us of the only means by which we might understand the nature of his "potential subjunctive." But we are not quite sure that we have understood the author even so far; for in his later examples (p. 155, c) he gives us the following instance of a potential "conditional": *Sich ernstlich zu wehren würde sehr gefährlich sein* (to defend one's self seriously would be very dangerous), in which sentence the subject-infinitive *sich ernstlich zu wehren* evidently is an abridged conditional clause (*es würde sehr gefährlich sein, wenn man sich ernstlich wehren wollte*), so that here the condition is not "less explicitly implicated," but clearly expressed. Hence either the author must have misunderstood the quoted sentence, or we cannot have understood the author correctly. Nor do we understand what the author means by the words "in general" and "under all circumstances," unless he meant thereby to exclude the "special" circumstances of the case; but this expedient would not apply to his examples, as: *es könnte mich retten*, a phrase taken from Schiller's *Mary Stuart*, which, completed, reads thus: *Dies elende Fahrzeug könnte mich retten* (this wretched skiff might rescue me). Here, evidently, is not expressed "what in general under the circumstances might be," but what the speaker (Queen Mary) under her *special* circumstances might effect, if the owner would lend her his vessel.—Nor do we understand why the author mentions only the words *might, could, would*, and not also *should* and *ought*; for it seems to us that phrases like *er hätte dies thun sollen* (he ought to have done this) have the same claim to be considered "potential" as those with *might, could* or *would*. With all these details the author has forgotten the most important point of the whole chapter: a precise rule for the rendering of the German conditional into English and of the English potential into German.¹ This would have been infinitely more practical than the whole remainder of his rules on the subject. The practical inexpediency of these rules is not a little increased by the fact that the author has treated the conditional period as a mere appendix to the subjunctive. This necessitated a repeated treatment of the same subject as an appendix to the conditional mood. Thus the double inconvenience arises that many rules are given twice, and that a subject which the student ought to have under one view, is torn asunder. The different forms under which the conditional period appears, and the varied force of the conditional conjunctions and their omission, are either entirely disregarded, or so dispersed that it will be very difficult for the student to find the necessary information, when needed. Thus we find no express statement of the important rule that the English potential with *would* or *should* can never be rendered by the German conditional² in the clause containing the condition, but that it must be rendered by the preterit subjunctive either of the main verb or of the auxiliaries *wollen* and *sollen*. The only way for the student to arrive at the first part of this rule is by *inference*, while the last part of the rule is not found at all. The author considers the German conditional mood as nothing but an admissible substitute of the preterit subjunctive in some of its uses, while he claims that the latter always may be substituted for the former,³ adding that the con-

¹ Thus for instance the different translations of *would*, either by *würde*, *wollte* or the subjunctive of the main verb; and of *should* by *würde*, *sollte* or the subjunctive. These renderings would include all material points of the author's details, without encumbering us with abstract and in a great measure erroneous theories. That he is not quite firm in translating these moods, sufficiently appears from our remarks p. 303, regarding his rendering *er wollte es nicht gethan haben*, and "he would not have done it."

² Although in the author's paradigms the German conditional is everywhere translated by "should."

³ We must decidedly contradict this. In the passive construction it would be generally very harsh to substitute the imperfect subjunctive for the conditional. Take for instance the following sentence: *Er würde zu sonderbaren Betrachtungen aufgeregt werden, wenn er eine solche Kritik schreiben wollte*, *Ötthe*, *Annal.* 243. Every teacher would correct here the imperfect *würde aufgeregt* if his pupils would use it. Thus in the active of weak verbs the substitution of the subjunctive for the conditional must often be considered as faulty.

ditional is much less frequent than the preterit-subjunctive (p. 155), statements which will be contradicted by every German knowing his own language.¹

The subjunctive of INDIRECT STATEMENT, according to the author, is used to express a thought indirectly, as reported, recognized or contemplated by "some one" (§ 333, 1). This definition is too vague, for every thought without any exception is recognized by "some one." It is true, he adds the word "indirectly;" but this is just the expression that the definition ought to have explained. Becker is here much clearer, when he says: "a *quoted* assertion of a person introduced by the author (einer besprochenen Person)."² In consequence of this vagueness the student will be unable to distinguish those cases in which the subjunctive *must*, or *may* or *cannot* be used. The author, indeed, is compelled to acknowledge (p. 154) that the indicative *may* also be used in these sentences, "mostly with an implication of actuality, as recognized by the speaker;" but that "the difference of implication is often very indistinct, and the choice between the two moods depends in part upon the style used: too nice a use of the subjunctive in easy discourse would be thought *finical* and *pedantic*."³ Thus the author evades one of those difficulties which are generally very imperfectly treated in our Anglo-German grammars. He will readily acknowledge that the use of the subjunctive of indirect statement in a great number of cases is *imperative* [for instance: er fragte, wo ich *sei* (not *bin* or *war*), Göthe, Ben. Cell. 23; er wähnt, daß du abwesend *sei* (not *bist*), etc.]; and again, that in many instances of what the author calls indirect statement it would be faulty to use a subjunctive, as: Ich weiß nicht, was er gesagt *hat* (not *habe*). Ich weiß, daß du das Gute *willst* (not *wollest*), Göthe, Tasso, 141; and that, in other instances, the use of the moods depends on the conception of the speaker, as: Sie glauben, daß er die alten Zeiten wieder einzuführen *gedenkt* (or *gebenke*), Göthe, D. u. W., 13, 115. If this is so, there *must* be a rule to determine this use, which—it is true—stands in none of our Anglo-German grammars, so that we cannot find fault with the author for failing where the others failed. But we *must* find fault with him for making the student believe that the subjunctive of indirect statement *may* in all cases be replaced by an indicative.

It is another error when the author says that the subjunctive of indirect statement "always" stands in a *substantive* clause (§ 333, 2). The fact is that all possible clauses, if stated indirectly, are placed in the subjunctive (conditional, concessive, relative, temporal, comparative, etc). Compare Göthe, Wanderjahre, 1, p. 58: Sie sagte, sie könne es einem Ehrenmanne, wie ich zu sein *scheine*, nicht verdenken, wenn er ein Mädchen, daß er allein auf der Landstraße *treffe*, einigermaßen verdächtig *halte*, ob sie *gleich* fremd *sei*.—About the TENSES of this subjunctive the author says (p. 153, 4):

Regularly the verb in the indirect statement has the same tense as it would have if the statement were made directly, by the person and under the circumstances contemplated.

It will be very easy to prove this rule to be incorrect. Take for instance the following *direct* statement: Ich war gestern beschäftigt (I was occupied yesterday). According to the author's rule the *indirect* statement would be: Ich sagte ihm, daß ich gestern beschäftigt *wäre*. But this would be a fault, and it must be "beschäftigt gewesen *sein*" (perfect), and not *wäre* (imperfect). Of this erroneous rule the author knows two exceptions, the one of which is even more faulty than the rule itself. He says (p. 153, c):

Rarely a subjunctive of indirect statement is forced out of the past tense which it should have into the present, as the more usual tense belonging to the indirect construction (see Reader, 190, 83.)

The sentence in the Reader to which he refers to illustrate this exception, is: Die Gefahr preßte dem Kaiser den Wunsch ab: er wolle gern jede Noth ertragen,

¹ That at least in North-Germany the use of the conditional is far *more* frequent than that of the subjunctive is a notorious fact. A few pages in Göthe will convince the author of his error. Many writers (for inst. E. T. Hoffmann) almost never use the subjunctive for the conditional. For the *beginner* the conditional mood should unquestionably be given as the rule, and the subjunctive as the exception.

² Even this definition is not quite correct, because "quoted" should be modified by the addition "not in the own words of the person introduced."

³ The author evidently has thought here of the *present* subjunctive, which is very rarely used in conversation. For this generally is substituted an imperfect subjunctive, which never would be thought finical and pedantic even in the easiest conversation, if used at the right place.

wäre nur das Heer in Antiochien wäre (the danger extorted from the emperor the desire: that he would willingly bear every deprivation, if but the army were in Antioch). But in this sentence there is no "forcing" from the proper preterit into an improper present. The direct statement would be: Ich will gern jede Noth ertragen, wenn nur das Heer in Antiochien wäre,¹ and hence, according to the author's own rule, the statement had to be made indirect by changing the present indicative will into the present subjunctive wolle. The "forcing" of a *proper* preterit into a present subjunctive would be always a solecism.

In spite of all the explicitness of the author on this subject, there are several kinds of subjunctives which he has not attempted to explain. We mention here only the subjunctives in relative clauses, when the antecedent is a negative or combined with a negation, as: Er hätte niemals einen Bedienten, der nicht im Hause noch zu etwas nützlich gewesen wäre, Goethe, D. u. B., 6, 41. Und Niemand ist, der ihn vor Unglücksfällen schütze, Schiller, Tell, 31. The rules on the German subjunctive can never be successfully presented, unless its use in the different clauses is separately explained. The treatment of the subjunctive according to general principles will answer for a philosophical grammar; but in a practical grammar it must necessarily lead to confusion and perplexity.

In the chapter on the INFINITIVE (p. 156—161) we have noticed several obscure statements and inaccuracies. Thus the author's remark referring to haben with an infinitive:

haben 'have' in certain phrases with an adjective (governs an infinitive without zu): thus, du hast gut reden 'that is easy to say' (i. e. thou hast talking good, makest² an easy thing of talking).

This explanation obscures instead of illustrating the idiom. „Du hast gut reden" precisely corresponds to the English "you may well talk" (sometimes it means "it is in vain for you to talk"), and in order to explain the expression, it was necessary to determine the meaning of haben in this connection. It is peculiar that this idiomatic phrase is given as the only example of the "regular" construction of haben with an infinitive without zu, while the evidently regular phrase: er hat Wein im Keller liegen 'he has wine lying in the cellar' (p. 158) is mentioned as a "special and more anomalous case."

In the same chapter we find a striking example of the author's tendency to obscure the grammatical facts of the language by dogmatic and abstract reasoning. He says (p. 157, a):

This construction (of a verb with a substantive-object along with an infinitive), especially with sehen, hören and lassen (and by far oftenest with the last), is followed out into a variety of other forms, some of them of a peculiar and idiomatic character: thus,

b. The proper object of the governing verb is frequently omitted, and the infinitive then designates the action without reference to any definite actor: thus, ich höre klopfen, 'I hear [some one] knock (hear a knocking);'

c. If, then, the infinitive itself takes an object, the construction is equivalent to one in which that object is directly dependent upon the governing verb, and is the subject-accusative of the infinitive taken as an infinitive passive; and it is generally best so rendered: thus, ich höre euch jeden Tag preisen, 'I hear you to be praised every day (hear [them] praise you);' er ließ die drei Ringe für einen machen, 'he caused the three rings to be made in place of one (caused to make them).'

d. That the construction has in fact, in the apprehension of those who use the language, been virtually converted into a passive one, and the real object of the infinitive transferred to the governing verb, is shown by the circumstance that that object, when designating the same person or thing with the subject of the verb, is expressed by the reflexive instead of the personal pronoun: thus, er wollte sich nicht halten lassen, 'he would not let himself be held' (instead of 'would not allow [any one] to hold him'); das läßt sich hören, 'that lets itself be heard (i. e. is worth hearing);' als er sich etwas vorlesen ließ, 'as he was hearing something read aloud to himself.' Occasionally, the logical subject of lassen is even added in the form of a prepositional adjunct: thus, sie ließen sich durch die Wache nicht abhalten, 'they did not suffer themselves to be restrained by the guards'—instead of sie ließen die Wache sie nicht abhalten, 'they did not suffer the guards to restrain them.'

This whole discussion amounts to worse than nothing. The plain rule is this: When the verbs sehen, hören and lassen are followed by an accusative

¹ The author seems to be of the opinion that the direct statement must be: Ich wollte gern jede Noth ertragen &c., probably because he assumes that in the conditional period both predicates must be in the past tense. But above we have shown this to be a mistake. The deprivations were actual and real ones; this is expressed by the indicative present will. Thus one mistake has begotten another.

² The verb haben obviously has not the meaning "make" here. "Thou makest an easy thing of talking" is very different from what the German understands by „du hast gut reden."

³ Here the second interpretation (evidently the correct one) is incompatible with the rule, and with the first parenthesis "some one." The two interpretations destroy each other.

along with an object-infinitive, the latter has ACTIVE meaning if intransitive and PASSIVE if transitive. Thus, *ich höre ihn schreien*, I hear him crying; *ich höre ihn tadeln*, I hear him being censured (I hear that he is censured) *lasse ihn sterben*, I suffer (or *cause*) him to die, but *ich lasse ihn töten*, I suffer (or *cause*) him to be killed. The author has contrived to involve this rule in such a maze of discussion, that the student will find it extremely difficult even to recognize the rule, and his statements, notwithstanding their length, do not contain even so much material, as the few lines just presented. If our grammarians would but begin to understand that the usages of a language are generally plainer and more reasonable than their ways of explaining them, which often create instead of removing difficulties! The author seems to have encountered such a difficulty in the passive meaning of active infinitives, and hence, tries to explain it away by supplying a personal object of the principal verb, in order to obtain thus a logical subject for the active infinitive. Against this theory there are two objections which are decisive: 1) Although the same usage is already found in the Old-German language, still not a trace can be discovered that an infinitive with passive form has ever been used in this connection. And yet this form would have been indispensable to explain phrases of this kind with *uncertain* subjects, as: *ich ließ ein Haus bauen*, I caused a house to be built.¹ To supply, with the author, for an explanation of such active forms with uncertain subjects, the English "them" (I caused *them* to build a house), is inadmissible since the *actual use* of such a pronoun in this connection and signification cannot be proved. 2) We find these active infinitives construed in a way, admissible only with PASSIVE verbs, namely with the preposition *von*, denoting the passive agent, as: *Er ließ die Brücke von seinen Leuten errichten*, 'he caused the bridge to be built by his men.' To supply the object "seine Leute" after *ließ* would be a grammatical impossibility. The author must have been aware of the weight of this latter objection, for he admits that *the construction has in fact "in the apprehension of those who use the language been virtually converted into a passive one.* But it is exactly the fact of "conversion" that cannot be proved. Since he acknowledges that those "who use the language" consider and treat these infinitives as passives, it would be perfectly safe to let the American beginner do the same thing. The use of active infinitives and participles with the force of passives in those languages that form their passives by means of auxiliaries is by no means wanting in analogies. So in English: "This is easy to see;" "the house is *building*;" French: *il fait faire un habit; des chambres à louer*; in German: *es ist nicht zu ertragen* &c.² And the author himself does not hesitate (§ 351) to assign to the past participle of all transitive verbs, which he (erroneously) considers ACTIVE, a PASSIVE meaning, and that without a word of explanation.

In the chapter on participles (p. 162) we find the remark that the past participle of a verb taking *sein* as an auxiliary may be used *attributively*, *Der gefallene Schnee*, the fallen snow. But only a very few participles admit of this active and attributive meaning. Thus we cannot say *der gebliebene Mann* (a man that has remained), *das gelaufene Kind*, *der geflogene Vogel*, *geflossene Strom* &c.

On page 164 we read the following remark:

Participles may not be used, as in English, to signify a determining cause or otherwise verbally: in such phrases as "not finding him, I walked away," walking uprightly we are surely," having saluted him, we retired," full adverbial clauses must be substituted for the participial phrases: thus, *da ich ihn nicht fand*; — *wenn wir aufrichtig wandeln*; — *nachdem wir ihn begrüßten*. Rarely, however, the participle approaches a causative force; thus, *dies befürchtend töten er den Beauftragten*, 'fearing this, he slew the messenger.'

¹ We are of the opinion that this English passive infinitive is a comparatively modern innovation, since we find in Anglo-Saxon many active infinitives with passive meaning, but no real passive infinitives in connections of this kind.

² These usages are very easily explained by the nature of infinitive and participial forms. Having no grammatical subject, nor personal endings, they denote the verbal action in its widest sense, and are well adapted to the meaning of either voice, as far as no ambiguity will arise. Their nature as verbal substantives and respectively adjectives seems to place this quality beyond doubt. *Das Tadeln des Mannes* (the censuring of the man) as well as *der Tadel des Mannes* may be accepted in both an active and passive sense, and even the Latin language shows in its gerund (*ars scribendi*) a passive form with active signification, a freedom which in Greek is even extended to the personal forms, the middle voice having either active or passive meaning according to the connection.

These statements are unfounded in almost every particular. It would be remarkable if the causal participle in *dies befürchtend tödtete er ic.* should be good German, while the completely analogous sentence "not finding him, I walked away" should not admit of a literal translation into German. And indeed the literal rendering *"Ihn nicht findend, ging ich fort"* is unexceptionable German. The next sentence "walking uprightly, etc., might be literally translated (*Aufrichtig wandelnd wandelt man sicher*) and would be good German, if it were not for the immediate succession of two forms belonging to the same verb. The third sentence, "having saluted," may not be translated literally, not, however, on account of the "adverbial force" of the participle, but simply because the German language lacks the active participle of the perfect. The German language quite frequently uses participial constructions with the force of causal, conditional, temporal, concessive and other clauses, as: *Er nahm ihn in sein Gefolge, versichert (being assured, since he was assured), daß derselbe die beste Aufnahme finden würde.* Barnhagen, Sophie Charl., p. 136. *Die Landeskinder, Beförderung hoffend (hoping for promotion, since they hoped for promotion) wagten es nicht sich von der Sitte loszusagen.* Göthe, D. u. W., 6, 46. *Durch den Strom geschieden (separated by the stream, since they were separated), konnten sie nur ein ohnmächtig Wehgeschrei erheben.* Schiller, Tell, p. 157. *Nur im mindesten schmerzlich berührt (being painfully touched in the least, if you are touched, etc.), bist du noch eben so geneigt, dich allem Unmuth hinzugeben.* Hoffmann, Serapionbrüder, 1, p. 6. *Ein Wald, der immer durchsichtiger werdend (becoming, while it became), zuletzt die Fesigung im klarsten Sonnenlichte sehen ließ.* Göthe, Wanderj., 1, 48. — *Eintretend in das Schloß (entering into the castle, when he entered), fand er die Wände der Hausschlur auf eine eigene Weise bekleidet.* Ib. 53. — *Keine schweren Pflichten fordernd (not claiming any difficult duties, although it claims) verleiht sie (Religion) dem Befenner alles Wünschenswerthe.* Göthe, zum Westfälischen Divan, p. 186. — It is true, participial constructions are rarer in German than in English, but only because the German language disposes of a great variety of briefer and more pointed forms to express thoughts which in English must be expressed by means of participial constructions,¹ or by full clauses.² Such constructions ought to have been explained; but even if we do not find fault with such omissions, it might have been expected that the author would not invent rules that are without foundation in fact.

In the chapter on PREPOSITIONS (p. 171) he enumerates 18 prepositions governing the dative, although on page 83 he says that they amount to "about 20." Among the 18 prepositions he mentions *gleich*, like, although *gleich* is an adjective, and no grammarian ever yet called it a preposition. But if *gleich* is a preposition, we evidently must consider likewise as prepositions the words *nahe*, *fern*, *unfern*, *ähnlich*, all of which govern the dative, the same as *gleich*. On the other hand the preposition *zunächst* is left out. In respect to *außer* we read the remark that, only in the phrase *außer Landes*, it governs the genitive.³ He remarks further that occasionally, by a bold construction, a word which is properly adverb only is constructed as if preposition: thus, *voran den tühnen Reiben*, 'in front of the brave ranks' (p. 171, § 374, c).⁴ Here the author ought

¹ Here belong especially the different prepositional phrases of the German language which the English language frequently or regularly must express by participial constructions: *Linguistic knowledge being more and more enlarged, that peculiar knowledge was developed which, etc.* *Bei immer wachsenden Sprachkenntnissen entwickelte sich jene Art des Studiums, die ic.* Göthe, D. u. W., 6, 73. — *Having no longer control over myself, I struck the messenger, Reiner selbst nicht Herr, schlug ich den Boten.* Schiller, Tell, 31. — *Peace being concluded, nach geschlossenem Frieden,* Schiller, Aufstand der Rieherlande, 23. — *Acting thus without plan, bei meinem zwecklosen Handeln,* Göthe, D. u. W., 6, 223.

² For instance: *bei untergehender Sonne* (when the sun is setting) *sieht man den Mond gern aufgehen.* Göthe, D. u. W., 13, 159.

³ Grimm (in the lexicon) gives several other phrases in which *außer* is construed with a genitive, and considers it then as an adverb (used instead of *außerhalb*). It might have been mentioned that many grammarians construe *außer* with a dative or accusative, and that even classical authors (for instance Schiller) construe *außer* occasionally with the latter case, although Grimm considers such constructions as blunders.

⁴ Such phrases as *„den Berg hinauf“* the author does not view in this light, but takes the accusative *den Berg* not dependent on *hinauf*, but as "absolute" (p. 172, No. c). However, he gives no examples, and without such we can do nothing with remarks of this kind. Thus in the phrase, *„den Berg hinauf waren Bäume“* which is the most "absolute" construction of the word we can imagine, the accusative *den Berg* is evidently determined (that is governed) by *hinauf*, and hence certainly cannot be said to stand "absolutely." In the phrase *„ich ging den Berg hinauf“* the accusative is dependent on the compound verb *hinaufgehen*, and certainly not absolute. How can, then, a teacher explain such puzzles to the student?

to have given a complete sentence as example, since the relations of the adverb *voran* to a following dative may be very different ones. The sentence stands thus in the Reader: *Fliege voran den föhnen Reihen* (p. 58), in which the dative is evidently the regular case, required by the verb *voranfliegen*. But whatever may be the connection of the phrase, we fail to see any boldness of construction in an adverb governing a dative. In § 372, *b*, we have a long philosophical discussion about the cases that each preposition *ought* to govern; but the author finds that only *some* prepositions do as they ought. It is a great pity that grammarians cannot *make* the language. How many difficulties might in this way be spared to the student!—Concerning those prepositions that govern two cases he remarks that they stand with the dative when they indicate locality or situation “*merely*,” or answer the question *where*, and with the accusative when they imply *motion* or tendency toward, or answer the question *whither*¹ (p. 172). He adds (p. 172, *c*) that the accusative and dative with their preposition have each its own proper value, the one as the case of directest action, the other as representing the ancient locative (or case denoting the *in* relation.² But he acknowledges that the difference of meaning is not always an obvious one, and continues:

Sometimes a peculiar liveliness is given to an expression by the employment of the accusative; thus, *er machte eine Oeffnung in die Erde*, ‘he made a hole in (into) the ground;’ *und küßte sie an dem Mund*, ‘and kissed her on the mouth (imprinted a kiss);’ *über den Rand der Tiefe gebogen*, ‘arched over (thrown as arch across) the edge of the abyss;’³—or the accusative implies a verb of motion which is not expressed: thus, *er stieg in ein Wirthshaus ab*, ‘he got down (and entered) into an inn;’ *er rettete sich in die Burg*, ‘he saved himself (betook himself for safety) into the castle;’ *sie stiegen in die Höhe*, ‘they stand up (rise to a standing posture);’⁴—or, the action is a figurative one: thus, *er sah auf ihn denken*, ‘think of him’ (turn one’s thoughts on him); *er sah auf all die Pracht*, ‘he looked upon

¹ The author has here essentially improved the rules given by *all* (if we are not mistaken) previous grammarians, inasmuch as he has seen that the case is not determined by the meaning of the governing verb, but the meaning of the preposition itself. This will unquestionably relieve a great many cases, hitherto a puzzle to many students, from all embarrassment. Nevertheless the rule might have been expressed more accurately. Take for instance the sentence given as example by the author: “*Der Rachen schließt sich über dem Schwimmer*” (the abyss [?] closes over the swimmer). Here the question is not, “*where* (i. e. *at* which place) does the abyss close,” but “*over* whom does it close,” and hence the sentence would not strictly fall under the first rule, on account of its too narrow wording. Thus in the second part of the rule the expression “question *whither*” is easily misunderstood. In the author’s sentence, “*er hatte das Ohr auf den Rasen gelegt*,” ‘he had his ear laid on the turf’ (which should be ‘he had *laid* his ear on,’ etc.) we certainly would apply the question “*where*” in English (*where* did he place his ear). Hence the sentence would rather fall under the first rule, and the accusative must seem a puzzle to the student.

² This historical remark seems to be of very little use to the student. It is, moreover, not quite correct. For, certainly, the dative has not its *own proper* value when it *represents another* case (the locative.) Nor does the connection of the accusative (as the case of the direct object) with the question *whither* seem so clear that the one should be called the own and proper value of the other.

³ None of these different accusatives imparts any liveliness to the narrative, but they are the proper cases to be employed here. They all are explained by the fact (generally overlooked), that verbs designating the producing of any result (causative verbs) are considered as verbs of motion, and the prepositions *an*, *in* etc. dependent on them, if they indicate this motion or production, must stand with the accusative. Hence in the first example *in* must stand with the accusative (*den Grund*) thus: *ich baute ein Lustschloß auf einen solchen Grund*, Göthe D. u. B. 6, 31. And so in the second example (he impressed a kiss on her mouth). For, although we shall not deny that oscillation may sometimes be an affair of “peculiar liveliness,” the circumstances of *this* kissing (in Uhland’s *Der Wirthin Tochterlein*) rather precluded liveliness, the kiss being applied to a—corpse. The third example is again torn from its connection, and is incorrectly translated by the author. It is taken from Schiller’s *Berglieb*, and reads: *die Brüste, hoch über den Rand der Tiefe gebogen*. *Gebogen* does not mean “arched,” as the author says, but “bent,” and the verb “to bend something over another thing” is obviously a causative verb (to make that something bends), and requires the accusative after the prepositions *in*, *an*, *über*, etc., (thus: *Unters Joch biegen*, Less.). It is true that in the last of the author’s examples the *datives* might have been used too, as in many other passages. This is especially the case after participles or perfects of such causative verbs, when an action that has happened before, is considered merely in its present results. Thus Göthe Geb. p. 94: *Da steht ich an meinem Stab gebogen*; and the same author in the passage: *wo du, auf deine Frau geküßt, erschienst*, (Tasso p. 127) might have used with equal propriety the dative (*deinen Frau*). This sometimes even classical authors have violated these rules is notorious. Thus Göthe uses an *improper* dative in the following passage: *In einem dieser Räume quartierte ich mich ein* (D. u. B. 6, 36). The same poet says in the Roman Elegies: *und des Hexameters Maass ihr auf den Rücken gezählet*. This accusative, not long ago, created quite a lively discussion among the German critics, in consequence of which the latest editor (Kurtz) has permitted himself to change the accusative *den Rücken* into *dem Rücken* (wrongly we believe).

⁴ To supply a verb of motion is necessary in none of these sentences, the idea of motion being here everywhere contained in the *prepositions* by which it is directly communicated to the principal verb. The author seems to have forgotten his own general rule that the case of the noun depends on the idea of the *preposition itself*.

all the beauty;'¹ sie freuten über die schönen Äpfel;'²—or these are phrases, the implication of which seems arbitrarily determined; thus, auf die beste Weise, 'in the best manner;' über tausend Jahre, 'after a thousand years.'³

That these statements are more or less erroneous appears from our remarks at the foot of the page. The author has entirely omitted to consider the synonymical relations of prepositions; nor does he attempt to show in which instances the same English prepositions must be expressed by a German case, and in which instances by a preposition (for instance the preposition *to*). Instead of it he presents us with a historical discussion on the origin of prepositions which he bases on the theory that the oldest prepositions were *originally* ADVERBS, an assertion which he introduces as an undoubted fact, although it is but a very doubtful opinion of some grammarians.⁴ Hence he calls prepositions a kind of "transitive adverbs"

In a similar manner the author has treated the chapter on conjunctions. We can only refer here to some few specialities. Thus the distinction of *aber*, *sondern* and *both* (§ 384, d.) is very imperfectly given. He restricts *allein* to a "definite objection," which not being illustrated by any example, will hardly be understood. The force of *sondern* is thus illustrated:

It is more strongly adversative than *aber*, being used only after a negative, and introducing some word which has a like construction with the one on which the force of the negative falls, and which is placed in direct antithesis with it: thus, *weil nicht eigene Macht, sondern Gott die Könige errichtet*.

This explanation is neither clear nor correct. If by "direct antithesis" the author means "direct contrary," the following sentence: *Die wahre Darstellung billigt nicht, sondern sie erleuchtet* (Goethe D. u. W. 13, 174) would be a solecism, and must be changed into *aber sie erleuchtet*, which would destroy all its force. If it means "an opposition of meanings", the sentence *er befiehlt es nicht, aber er wünscht es* would be faulty, while we may use *aber* or *sondern*, though with quite different force. The essential force of *sondern* is in its *corrective* power. It corresponds to the English "but rather" or "but on the contrary," while *aber* corresponds to "however." The synonyms of *sondern* (*vielmehr*, *dahingegen* etc.) are not mentioned at all.

In the chapter on the arrangement of the sentence (p. 215) we have noticed many erroneous statements, of which we mention the remark "that a sentence after one containing *kaum* must *always* have the form of an independent clause," as: *kaum war der Vater tobt, so kommt ein jeder mit seinem Ring*, "hardly was the father dead, when (literally *then*) each one comes with his ring." This is a strange mistake. The very sentence mentioned may be expressed in the form of a dependent clause, which is the *regular* case, thus: *kaum war der Vater tobt, als ein jeder — ankam*. Compare: *kaum hatte sich die Flut, verlaufen als der Boden schon wieder vor den Bliden der Geretteten lag*. Goethe D. u. W. 4, 157.

On page 216 the author says: "when a clause ends with two or more infinitives, the transposed verb is not allowed to be put after them, but is placed instead next before them." But we say: *da er Englisch sprechen lernen wollte*, where the transposed verb stands *after* the two infinitives. The rule given by the author must be restricted to the *compound tenses* of those verbs which have their participles in the form of an infinitive.

The chapter on construction of sentences (p. 204) is introduced by a lengthy discussion on the "analysis of the sentence," at which we were rather astonished when first reading it. The author says for instance that every assertive

¹ It is very peculiar to call the verb *sehen* (to look) here a verb with a *figurative* sense.

² The fact that the action is a figurative one can never be the cause of an accusative after the prepositions *an*, *in* etc. Such constructions are strictly treated, as if the verb had the corresponding local sense, and accordingly, require sometimes the dative and sometimes the accusative. This ought to have been illustrated by sufficient examples. From the author's statement, as it stands, the student must necessarily infer that the mentioned prepositions always must take an accusative of the governing verb if used in a figurative sense, and he would be induced to form faulty phrases, like: *ich habe etwas auf das Herz; ich bin in die Nothwendigkeit*.

³ Such phrases have been and may be satisfactorily explained. Thus *auf diese Weise* (in old German the dative was used in this phrase) means the same as the Latin *in hunc modum*, and the accusative denotes the direction into which the main action turns. *Über tausend Jahre* is easily explained by *going over a space of thousand years*. Such phrases have assumed the nature of standing formulas, and since they can only be learned practically, ought to be carefully collected by the practical grammarians.

⁴ The author speaks even of a period in which the "conversion" of adverbs into prepositions happened (p. 172). This sounds very much like conversion of seven-thirties into five-twenties.

sentence has arisen from two sentences, and that "he loves me," properly means "I assert that he loves me." The imperative sentence "Love me" is a change from the original "I request that you love me." This way of explaining things belongs in the Kindergarten, and hardly there, since it is void of reality and misrepresents the way of thinking. The author overlooks that the "original" sentences from which he derives his assertive sentence, contain again two assertive sentences "I assert" and "he loves me," and that they each would again presuppose two "more original" sentences, which makes four and so on. He closes this discussion (2 pages of small print) with an "explanation" that is entirely unintelligible to us: "A negative sentence," he says, "is only one variety of the assertive, in which, of two opposite and mutually exclusive things, one is affirmed by the denial of the other. We can only apply to this statement Mephisto's words: Ein vollkommener Widerspruch ist gleich geheimnisvoll für Kluge wie für Thoren.

In concluding this review we must add a few words to prevent being misunderstood.

We have had to attack the author in many of his positions, but we are far from underrating the numerous excellent points of his work, not the least of which is that he has introduced a closer scrutiny of many grammatical questions hitherto altogether neglected. Although we had often to consider his views as untenable, the mere introduction of such points and their submission for further development to teachers and students must be deemed highly valuable and meritorious. We wish that the author might be induced to change his grammar so as to remove the objections which we have opposed. We have no doubt that he would be eminently successful if he would consent to reconsider impartially some of those opinions that he has advanced perhaps too quickly.

GUSTAVUS FISCHER.

CORRESPONDENCE.

MR. EDITOR,—In the fifth book of the "Library of Education," we have the opinions of the Protestant, Catholic and Jewish members of the community. Added to these are to be found in it elaborate arguments pro and con by secular writers, lectures by the clergy, harrangues by lawyers, of course on both sides of the question, and the decree of the Superior Court of Cincinnati. But there is one party in the country who certainly has special interests at stake in the decision of the question, who seems to be unrepresented. I mean the School Teacher. As one of the fraternity, permit me a space in your periodical to supply the omission. I ask this favor because there is a "method in my madness" in thus thrusting my opinions into the controversy, and also because I have an idea which I wish to set before the public, which will be found in the concluding paragraph of this letter.

Before I produce my compromise, for it is a compromise I intend to propose, I would say that the "vexed question" between our Catholic and Protestant brethren does not appear to be limited to—whether the Bible should be retained or excluded from our Public Schools?—but rather—whether moral training can be righteously separated from the intellectual training of youth? I confess, as an

experienced educator, that physical, intellectual, and moral training, the sine qua nons of a perfect educational system, and that it is inexpedient to separate them. As a father in search of a school for my children, the first requisites I should seek for in their instructor would be moral calibre and self-command; the second, knowledge and ability to impart it; and the third—the order, cleanliness, and material surroundings of his academy. Were these all satisfactory, I could cheerfully surrender for the terms of the School commissions my parental powers over my children into his charge.

But it is impossible to apply such tests to State Education. Of necessity, the highest form of moral training must be considerably and not entirely dispensed with in our Public Schools. Is it too much to add that books touching on the subject should be carefully selected of any comments which might be offensive to any part of the community? Take English History for example. Is a compilation on Hume's or Lingard's version of it to be used? Is Queen Mary Queen Elizabeth to be distinguished by an offensive epithet? Are Cromwell's battles in Ireland praiseworthy or reprehensible? As to almost every question in modern history, not excepting the earlier portion of our own, are there not two answers? Does not this view of the question affect Geography also, and to some extent interfere with some of the natural sciences? Not until an American Index Expurgatorius is issued, acquiesced in by men of all persuasions, containing a list of books proper to be used in the Public Schools, will the able arguments of those who contend for the withdrawal of the Bible, and the continuation of the present system of State support be entirely sound and complete.

But, as an Instructor, there is another phase of the subject which is my duty to set before the public. A sickly and unworthy sentimentality, pandered to by certain presses, has largely deprived Public Teachers of their proper power of corporal punishment, inconsistently arming the policemen with a locust baton to make up for the omission. To this deprivation of a right, it is now proposed to largely decrease his moral power also, for such must be the effect of excluding the Bible from the Public Schools. To do so entirely will reduce him to a nonentity. A teacher who is not permitted to denounce lying, swearing, and thieving, as offences against the Deity, is restricted to pronounce against such crimes merely that they are infractions of school edicts or State laws, will neither deserve nor have much attention paid by the children to his milk and water cathemas. But a school without God is surely a monstrosity which should not long exist. If we can obtain no more let us at least make a stand for the ten commandments for the honor of the Great Author of the same. There can be nothing in them justly objectionable to the Catholic, the Protestant, or the Jew. Even the Deist might be expected to acquiesce in the excellence of all save the fourth. As to the pagan Chinamen, atheists and other madmen, they may be ruled out of consideration in this matter. Once more for the general good of

the Schools and the nation let us at least demand the Decalogue ~~as~~ ^a the right to enforce its decrees as the laws of God. Stand by the ~~D~~ ^D catalogue !
R. W. HUBBARD.

P. S.—If the eleventh commandment could be admitted, so ~~much~~ ^{much} the better ; it surely would not mar the harmony of our schools ~~to~~ ^{to} tell the children to "Love one another." If, however, our Jewish neighbors should object to it as an unauthorized addition, let ~~us~~ ^{us} at least hope that it will be heeded by all Christians while discussing the subject of the Bible in the Public Schools.

ASTORIA, LONG ISLAND, June 4, 1870.

COLLEGE CATALOGUES RECEIVED.

RUTGERS COLLEGE, New Brunswick, N. J., Rev. William H. Campbell, D.D., LL.D., President. The number of instructors is 12; number of students, 151, of whom 46 are in the Scientific department, which has been constituted, by act of the Legislature, the State College for Agriculture and the Mechanic Arts.

CORNELL UNIVERSITY, Ithaca, N. Y., Hon. Andrew D. White, LL.D., President. The number of resident instructors is 29; number of students, 563. There are seven non-resident Professors, who deliver lectures on various subjects.

COLLEGE OF THE CITY OF NEW YORK, Gen. Alex. S. Webb, President. There are 28 instructors connected with the institution. Of the 768 students, 400 are in the Introductory Class.

LAFAYETTE COLLEGE, Easton, Pa., Rev. W. C. Cattell, D.D., Pres. The number of instructors is 20, and the total number of students is 180, of whom four are resident graduates.

WESLEYAN UNIVERSITY, Middletown, Conn., Rev. Joseph Cummings, D.D., LL.D., President, has a faculty of eleven members, the number of students being 153.

DARTMOUTH COLLEGE, Hanover, N. H., Rev. Asa D. Smith, Pres. The number of instructors is 32. The total number of students is 418, of whom 52 are in the Medical department, 289 in the Academic department, 70 in the Scientific department, and seven in the Agricultural department.

GENESEE COLLEGE, Lima, N. Y., Rev. D. Steele, D.D., LL.D., Acting Pres., has 66 students, and a faculty of four members.

MARIETTA COLLEGE, Marietta, Ohio, Rev. I. W. Andrews, D.D., President, has eight instructors and 57 students in the Collegiate department.

BOWDOIN COLLEGE, Brunswick, Maine, Rev. Samuel Harris, D.D., President, reports a faculty of 15 members; 87 medical students; a scientific class of 10; and 127 students in the College proper.

UNIVERSITY OF NORTH CAROLINA, Chapel Hill, N. C., Rev. Solomon Pool, President. Six professors and 35 students are reported.

TUFTS COLLEGE, Medford, Mass., Rev. A. A. Miner, D.D., President. There are 15 instructors, and 68 students in all the departments.

College Officers are requested to send, to the Editor, their next Catalogues as soon as issued.

AMERICAN EDUCATIONAL MONTHLY.

AUGUST, 1870.

A WOMAN'S OPINION OF WOMEN TEACHERS.

WOMAN presides in far the larger portion of our school rooms. This is well for her, and should be best for the pupils. Nature has better fitted her for the position than she has man; but woman does less for herself.

The New England girl, in circumstances which necessitate employment for a livelihood, with a well-founded prejudice against the servitude of the factory, and an aristocratic antipathy to a trade, starts in a race, the goal of which is the teacher's desk. With no special love of children, and less love for knowledge, she drills herself in text-books, and, at the earliest possible moment, secures a situation. Some, a little more ambitious or blest with better school advantages, "go through a course of study," and are graduated at some boarding-school, academy or normal school. But the result in the school-rooms they come to govern is obviously much the same: they are practically little better prepared to be examples for growing minds while forming habits of speech and manner, than their less fortunate sisters.

Throw aside text-books, and examine a class of young ladies about to receive their diplomas and to enter the lists of the teaching profession. The majority are too youthful to

receive a diploma for any employment save dressing a d O ll
yet they will repeat pages of Paley and Butler in the ex a ac
language of the book. They will astound you with th eir
fluency in Algebra and Geometry. They have "finished"
the sciences. They have "gone through" Chemistry, p e r-
haps, without witnessing, much less performing, an ex p e r i-
ment; but they can repeat the Atomic Theory, and are g l i b
with the nomenclature of the science. Geology has b e e n
hurried over without seeing a fossil or handling a m i n e r a l.
The milky way has been skimmed from Astronomy; a f e w
star-names committed to memory; and, if the book is an o l d
one, you will be assured that the sun is ninety-five m i l l i o n s
of miles from the earth. Lead the class to historical s u b-
jects. Attila, Mahomet, Czar Paul, and Paul Jones, a r e
names in mind; but there is no associated idea of their r e-
spective places in the cycles of history, or their possessors'
relative importance as factors in the development of t h e
race. The amount of show knowledge they possess is w o n-
derful; and not less wonderful is their lack of real kno-
ledge.

This is on the day of graduation. After one, or two, o
three years' occupation of the teacher's chair, they will b
little better prepared to pass a practical examination.
Young-lady teachers, after six hours' confinement in th
school-room, betake themselves to tattling, or light reading
for diversion, rather than to hard thinking and study for im-
provement.

Longfellow said years ago—and the saying has gathere
truth with the passing years, as the rocks do moss—that th
country is press-ridden rather than priest-ridden. There
a Caxtonian madness among us, and books—text-books e
pecially—are crushing out individuality and cramming th
memory to the detriment of thought. They are the 'doo
through which creep these half-fledged teachers: throug
them comes our children's distaste for school and stud
And one series follows another, until the mind of teacher, -
well as pupil, is, like a dictionary, barren of all save defi-
tions.

The American girl's mind is in a chaotic state when s
receives her diploma. It is by no means empty. It h a

A Woman's Opinion of Women Teachers

been crammed with knowledge—or, more correctly, word-signs of knowledge—but so rapidly that perception could not keep pace with acquisition. Half comprehended facts have been received in abundance, but never labelled and shelved so as to be produced at sudden call. Yet she is under the delusion that she is educated, and competent to educate others. And as a teacher, she arrogates to herself a respectability superior to the milliners or the mill-girls, forgetting that her fitness for the teacher's desk alone determines whether it is to her a position or only a situation—whether she has a vocation or merely an employment. At present it is too often the latter. And the weaver or spinner who does her work well, is more worthy of honor than she who, unqualified by judgment, self-discipline and scholarship, essays to develop and instruct young minds. That the lady-teacher's ambition is almost universally limited by the assumption of school-room authority, is sadly evident. In one of our most popular and widely known schools for young ladies—one which sends forth scores of teachers for this and for heathen lands—a principal boasted that she had not been absent from the Institution but one day for thirteen years! This was her sheaf, the proof of faithfulness. Thus shut out from the world, how could she gain that varied knowledge of the world's needs essential to prepare those in her charge for their future missions? Constant contact with learners who look up to her as the fount of wisdom, seldom listening to her own superior in what passes for knowledge, brightened by no intellectual friction, and only *hearing* of the world and its ways progress until the actual life beyond her view, and into which her pupils were to go, had become but a theory—how could she keep pace with the requirements of the nineteenth century? Could she be other than she was—hard in decrees, clinging to old methods, grinding out a certain amount of mental and manual labor indiscriminately from the rugged and the delicate? But the school has a name. Others keep it well supplied with misses—and, as a physician once remarked, "subjects for him!"

FELICIA A. D. HAMMOND.

LESSONS ON OBJECTS.

SECOND STAGE.

SUGGESTIONS FOR THE TEACHER.—In giving lessons on objects in this stage of training, it will be appropriate to lead the pupils to consider the *materials* of which the objects are made, their most prominent *qualities, form, color, size, parts, uses, where found, or by whom made.*

Care should be taken not to allow these lessons to fall into a barren monotony by requiring the pupils to frequently mention those qualities which are so common to objects as almost to permit their being called universal qualities, as *opaque, solid, useful, inanimate*, etc. Chief attention should be given to the leading characteristics of objects, and especially to those qualities which contribute most to the usefulness of the objects.

SPONGE.

Pieces of sponge may be shown, and the children allowed to handle them, while a conversation is had between the teacher and the pupils which will lead them to observe that the *color* of the sponge is *yellowish*; that it is *soft* to the touch; that it is *compressible*, or easily squeezed by the hand; that it is *elastic, porous, and absorbent.*

The conversation may also consider the *uses* of the sponge, as for *bathing, for washing carriages, for cleaning slates*, etc.; and what qualities make it useful for these purposes, as *soft, compressible, elastic, absorbent, and fibrous.*

If this lesson has been well presented, the black-board will now contain an outline somewhat as follows, viz.:

SPONGE.

Its Qualities.

Soft.
Compressible.
Elasticity.
Porous.
Absorbent.
Fibrous.

How these make it Useful.

Will not scratch.
Water may be easily squeezed out.
Will quickly return to its shape again.
The holes or pipes enable it to be absorbent, or to suck up liquids
Not easily torn.

It is useful for

Washing carriages, cleaning slates, and bathing.

Its color is -

Yellowish.

It is Found

On rocks in sea-water.

The teacher should now question the pupils about these qualities, their uses, etc., until they clearly understand how the sponge becomes useful by possessing these properties. Afterward tell *where* and *how* the sponge grows, and how it is obtained.

• HOW THE SPONGE GROWS.

Suppose you were standing on the shore of the Mediterranean, on a rock which jutted out a little way into the sea, you might observe a pile of sponge fastened under the water on the rock, and, as you watched it carefully, you would see now and then a jelly-like looking thing, resembling a drop of the white of an egg, and somewhat of the shape of a pear, but very small, fall off the side of an old sponge. This little thing is called a *gemmule*, or bud. It has no shell nor skin to cover it, no eyes, no ears, no feet, and no fins, yet it has life, keeps itself from sinking, and not only moves up and down with quickness, but soon it becomes partly covered with fine hairs like eyelashes, called *cilia*. The *gemmule* moves these *cilia* about quite rapidly, making a motion in the water, and starts off. As it swims, it looks as if it did not know what it wanted, nor where it was going. But its Creator knows, for He cares for it, and draws the little sponge *gemmule* far away from the old sponge, that it may live in another place, and so spread the good of its existence over the sides and bottom of the sea.

If two of these *gemmules* happen to meet and touch each other, they instantly stop moving their *cilia*. The next moment they turn themselves round, and then off they go on their way through the water. After wandering about for some three days, the *gemmule* seems to become tired of roaming, and settles down upon some piece of rock, or shell, or wood, and begins to fasten the smaller end of its body to this hard substance. The place where it settles thus becomes its home as long as it lives. While this *gemmule* is

making itself fast to the rock, its *cilia* keep the water around it in motion ; but in a few hours after it has fixed itself tight, these *cilia* become quiet, and this jelly-like animal lies down flat on the rock.

Soon after the *gemmule* has become quiet, a great number of dark spots may be seen floating in its clear little body. These dark spots are the *fibres* of the sponge beginning to grow in the live jelly. These fibres are made of silex, lime, glue, and albumen, which substances are drawn into the body out of the sea-water.

These little spots of sponge soon join together like a network, and make a sort of frame-work or skeleton for the live jelly to rest upon. As the sponge's frame-work grows in the *gemmule*, its live jelly grows too, and the jelly fills all the tubes and holes of the sponge, and even covers quite over the outside of the sponge.

When the jelly is much grown, a great many fine spikes are sometimes seen to shoot out of the sides of the sponge tubes. It is supposed that these fine spikes are made to grow in the inside of the tubes, to prevent the weight of the growing sponge from pressing too heavily on the live animal jelly. All around that part of the sponge which is fastened on the rock you may see a clear rim of jelly spread out ; and when two sponges grow so near each other that these rims touch, they immediately grow together, and make one lump of sponge.

Persons have tried to take hold of the living jelly of the sponge, in order to see what it is like ; but they are always disappointed, for as soon as it is taken off the sponge, it turns into a kind of thick oil or glue, and soon dries up.

As the sponge grows on the rocks, it throws up many round or cone-like heads, with large holes at the top. The sides of the sponge are full of *little* holes or *pores*. It is by these little holes that the sponge draws the sea-water into its substance ; and after letting the water run through the whole mass of its body, the living creature throws out what it does not want through the large holes at the top, and often sends this water out with such force as to cause it to rise up like a little fountain.

These sponge animals are of many shapes, according to

their species. Some grow like shrubs, some like vases and tubes, and some like globes. All the sponges stick so tight to the rocks upon which they are fastened, that the dashing of the waves hardly ever tears them off. In some places they are seen to cover cliffs and rocks; in other places their soft bodies line the walls of caves deep under the waters; and sometimes they hang in drooping branches from the roofs of the caverns.

Sponge is found in the various parts of the ocean, but the strongest sponge is obtained from the Mediterranean Sea.

When the sponge is taken from the water, the animal jelly soon dries up and crumbles to pieces. That which we call sponge is the frame-work, or soft bones of the animal.

The inhabitants who live near the water where sponges grow are taught to dive for the sponge when they are children. They learn to remain under the water from one to two minutes at a time, pulling the sponges from the rocks, that they may bring them up to the surface and take them on shore.—*From New Primary Object Lessons.*

N. A. CALKINS.

SOME PENNSYLVANIA IDIOMS.

THE southern border of the Keystone State was settled in the eastern counties (Delaware and Chester) chiefly by the English. In the counties immediately to the west of these (Lancaster and York), the "Dutch" element, so-called, now predominates; but the first settlers on both sides of the Susquehanna and to the Virginia line, were Scotch-Irish Presbyterians, who sat down with the Old-Country names for their new haunts, and with the Old-Country words for their common speech. Leaving the Dutch portion out of view, except as it may have reacted upon the other two, the writer, a born Yankee, offers some of his observations on the words in use in the English and Scotch-Irish settlements fifty years ago, and, to a greater or less extent, since then to this day. He has chosen such as were unfamiliar to him as a New Englander.

The fathers and mothers of that day belonged to the "old school"—the school which, as Bartlett says, in his "Dictionary of Americanisms," "in spelling the word [*able*,] was taught to say, 'a by itself, a, (rapidly, *abisselfa*,) [pronounced, *a-bissel-fay*,] a-bissle-fay, b, l, e, *ble*, *able*.'" The best fed of them, when bitter cold, could say, "I'm most starved," or, "My feet's starved," using the word nearly in the sense of the German *sterben*, to perish. But from hunger they seldom suffered. Forenoon and afternoon they had their lunch without fail in harvesting; and the mistress would remind her servants that "It's near *piece*-time," or, "It's time to get *piece*;" if afternoon, then the "four-o'clock *piece*." A guest over-helped at table would protest, "I wouldn't choose such a *parcel*"—meaning so great a quantity; though the word is by derivation a diminutive. And, what a New Englander could never say, he might even exclaim: "What a *parcel* of cream you have given me!" A bad carver was liable to the reproach of *mammocking* (pronounced *monnick*, or *mummick*) the joint before him; *i. e.*, mangling or hacking it. What was sour to the taste was "as sour as *whig*," (pronounced *wig*)—another form of *whcy*, of straight Anglo-Saxon origin. Theirs was a robust generation, but it was not uncommon for a person generally well to have a *brash* every now and then, or to be *brashy*, or subject to *brashes*—sick turns, as we now say. A dead body was vulgarly called a *corp*. A hanger-on in kitchens, in the way of the women, would be spoken of as "a regular old *cot*" (cotquean), and perhaps would be frankly told, "You'd better *moscy*"—slope, be off, absquatulate. The family vat for making lye was called the *ash-kecue*. A careless person, carrying some frail vessel, would be warned: "You'll break it as sure as the *heart-money*"—a noticeable word, whose equivalents (hearth-penny, chimney-money) show the primitive application of the word in England to a tax only too certain to be collected, and, by its very nature, an odious one. The phrase in America must have lost its significance early. No thought of a tax on the hearth-stone marred the *infair* (*infare*, accent on the first syllable), or reception party after a wedding; also known as the home-coming, (Pennsylvania Dutch, home-bringing). The breaking up of a household and removal, on the other

was, and is to this day, styled a *flitting*.¹ Finally, parting with the old folks, let us record a curious nation, best defined by example: “*It don’t signify, but red!*” “*It’s very warm; it don’t signify!*” “*It don’t signify—this won’t do!*”—where it is very clear it *does* signify. Children had a rigid training from the cradle up. Nursery-word, not yet wholly obsolete, may be particularly introduction here—*hippen*, which is conjecturally since it is not to be found in the dictionary; and we only guess it to be a shortened form of “hip-band.” At it was polite for “clout,” when to say “diaper” was to be tedious or prudish. Solomon’s discipline ruled every; and *scutching*—a term borrowed from the treatment of, then a domestic occupation—was the flogging with which the disobedient child was threatened or visited; as, in stance, after he had waded ankle-deep or over *shoe* in some puddle, or been caught *miching*; *i. e.*, playing truant from school. Recess, in those days, was called *noon*. It was the *big noon*, or the interval between the forenoon and afternoon session, from twelve to two, when the scholars went home to their dinners. *Little noon* was the recess, as we understand it, in the middle of each session. The respect for older people was inculcated in a singular fashion, even in poor families, by requiring children to use, instead of the vulgar “what,” the word *anan* (*nan?*). Cooper’s Natty Bumppo—himself a child in some things—knew the phrase and used it before his superiors. At table, as now, at the *merry-thought*, or wish-bone, was the children’s game; but then, as not now, the fowl’s wattles were sometimes called *chellers*, an obscure designation. The delicacy sold at the shops was undoubtedly *mosey-sugar*—a kind of molasses candy, (not cake, as Bartlett defines it), distinct from *nutts*, of which more presently. It was black, and made in the round patty-pans, presenting a scalloped appearance like our maple-sugar cakes. *Belly-guts*, on the contrary, the name given to long-drawn, twisted white sticks of molasses candy, (*this* name was not used forty years ago), we believe, is still in vogue. The origin of the word is

¹ Hence the proverb—“Friday flit, short sit.”

not clear; but the refined notion is, that it is a corruption of the French *belles-gouttes*, like "Jerusalem artichokes," from the Italian *girosolo*. Among the culinary recipes of the "Tangier"-Smith Records, is one "To Make Allmond Pudding in Gutts;" while among the medicinal, the spelling "guttles" is reserved for the intestines. However, your stingy lad would not give so much as a *stooter* (Dutch for a small silver coin worth two-and-a-half stivers, or five cents), not a mite, to his comrade. "Not a *hooter*," might also be the answer of the disappointed fisherman, when asked if he had caught anything; or a big catch would be greeted with the boyish exclamation, "*O hagees!*" (qu. Hades?) A plainer corruption, apparently, exists in the word *hunkers*, for haunches, on which boys squat, at times, in the course of their games. *Hunkics* may be heard even now-a-days, with the same signification.

We must give a separate paragraph to that extraordinary child's word, *Saddy*. Bartlett makes a verb of this word, and confines it to no locality; but we doubt if it is ever heard from natives north or east of Pennsylvania. He defines: "To bob up and down; to curtsy like a child. Probably a child's corruption of *Thank-ye*, applied to the curtsy which accompanies the phrase." This etymology, however, seems to be insufficient. In the first place, among the old Scotch-Irish of Cumberland County, the word had no necessary connection with "thank you." It was generally, if not always, a noun—*e. g.*, "Make a saddy," and was nursery or child-language for a bow; that is, it was the simple act of greeting and respect, without a trace of gratitude in it. Very likely, a gift or favor would be received with a curtsy along with the expression of thanks; but we do not find that *saddy* was this expression. In Chester County, however, the two were conjoined formerly, and to this day *saddy* is the only known word for "thank you" among Quaker children in and about Philadelphia, we believe, although the accompanying curtsy is out of fashion. Great was the amazement of a friend of ours, not far from thirty, when challenged to find this word in the dictionary; and even while preparing these remarks, we have been gravely thanked with "*saddy*" by another Quaker of about

the same age, and as little a Quaker in any respect, save birth-right and breeding. In pronouncing this word, by-*ie*-by, the vowel-sound of the first syllable (whose flatness is indicated by the double *d*) is prolonged to nearly four times the length of the final syllable.

What the ancients, meaning household goods, called *householdings*, the adult generation (not yet departed) called *housen-things*, as they still do in Delaware. Bartlett gives *housen-stuff* in the same sense, and says *housen*, as the plural of house, may be heard from the illiterate in the interior of New England, in New York, and New Jersey. Husband and wife that agreed together, were said to *gee* (New England "jibe," rather). A fretful dame, on the other hand, would be charged with a *pheesing* disposition—with always '*pheesing* about something or other.' A considerate husband would bid her not to *fash* herself, not to be *fashed*; *i. e.*, not to bother herself with this or that concern—remembering, perhaps, that she was rather *nesk*, (pronounced *nash*), or other words *delicate*; or that she was *donsy* (*donny*); *i. e.*, under the weather. Harder to bear might be a wife that went *chivying* about among her neighbors, neglecting her domestic duties. The good housekeeper, on the contrary, no matter how *brittle* (variable) the weather, was always a stirring and *work-brittle* person: would *red* a room for her guests at short notice, putting a *redding*-comb and brush on the stand, and making other necessary provision for their comfort. In her house, things were never topsy-turvy, or *all through other*; it was forbidden to *ruck up* or rumble anything that was smooth. Her habit was to manage liberally, without *skimping*, and yet economically; to take a *scrimption* when she could not afford more. Her table was always bountiful; and seldom, if a dish went out to be filled, did the servant return the answer: "It's *all*," or, "It's *all any more*." Her favorite cookey was of the sort, probably, peculiar to Philadelphia, and thence introduced to the country around, well known as *apees*, *apeas*, or *A. P. S.*—you may really take your choice. We have found this word in print only in the plural, but the singular was, and probably is, in use (pronounced *a'pee*.) The first spelling we take from "The National Cook Book, by a lady of Philadelphia: a Practical

Housewife." (Second edition. Philadelphia: Robert E. Patterson, 1851). The second spelling we have met in a manuscript (Philadelphia and Chester County) scrap-book, marked 1817; while the third and last is from "The Philadelphia Housewife; or, Family Receipt Book, by Aunt Mary." (Philadelphia: J. B. Lippincott & Co., 1855.) Mrs. Ellet does not mention the cake. For ourselves, we have little doubt that "Aunt Mary" is nearest right in her orthography, and that the cake got its name from some "A. P." baker of such goodies.

We may be pardoned for giving in their order, as above, the recipes of these various books. Lady-readers shall decide between them:

"*Apees.*—415—Three-quarters of a pound of flour; half a pound of butter; half a pound of sugar; one tea-spoonful of grated nutmeg; as much milk as will form a dough. Cut up the butter in the flour; add the sugar and spice by degrees. Stir in as much milk as will make a dough. Knead it well; roll it out in sheets, cut it in cakes, butter your tins, lay them on so as not to touch, and bake in a moderate oven."

"*Apees.*—Half a pound of flour; quarter of a pound of butter; half a pound of sugar; one wine-glass of water; half a glass of rose-water; some allspice. Take out some of the flour to make them up with."

"*A. P. S.*—Beat to a cream half a pound of butter, with same of sugar; a few caraway seed, three eggs, rose-water, and nutmeg, and flour enough to make a dough; roll out thin and bake." (Page 112)

"*A. P. S.*—Cut fine half a pound of butter, in three quarters of flour; half a pound of sugar, a glass of wine and brandy, rose-water, and spice to your taste; then mix in two ounces of flour, reserving two ounces to mould them in." (Page 146.)

Our model house-keeper minded closely her own business, never moving about or *rootching around* in what did not concern her. She was an *other-guess* character—an *other-guest sort* of person, as Goldsmith would have said. We like to imagine her a comely, well-proportioned dame, not *squat* and *buntty*, nor of poor complexion, either *splotchy* or *morphed*; *i. e.*, with her forehead and cheeks covered with yellowish blotches ("morphewed"). Children were attracted to her as much by her motherly appearance as by the sweetmeats which she kept in her cup-board for them; not an infant but

could instinctively *nuzzle up* to her. No *fouty* (trifling) little thing would disturb her equanimity. If a nail tore open the pocket of her *sleazy* (which she would call *slazy*, meaning limsy) dress, she would quietly pin it *shut*. This last word she would use for the door when swung *shut* by the wind; and, for her, to be rid of a thing was to be *shut* of it. By divorce, she sometimes got *shut* of a worthless husband; but in those days, "incompatibility" did not, like charity, cover a multitude of sins. A woman could hardly put away her spouse because he *skellicd*, (*i. e.*, was cross-eyed), or because she took a *skunner* at him, (disliked him, in plain English), or because he was no *patchin* to some other (couldn't compare with said rival).

A few other words we may note, without seeking to connect them by a thread. They are still in use. In Bucks County, *bushed*, in the sense of fatigued, fagged out; a term apparently originating in the harvest-field, as if the tired hands quit work and "took to the bush." In Cumberland and Lancaster Counties: *Past*, as in the following example: "Do you really think him guilty of stealing?" "I wouldn't put it *past* him;" *i. e.*, I wouldn't overlook him to fasten it upon another; in brief, "Yes, I do." To *sock* is to hit as with a ball; that is, lightly. But we have found a neutral use of the word in the *Chicago Republican*, of June 6, 1869:

"Whatever may be the sentiments of the jury, it is certain that the outside public are strongly in favor of (to use the popular phrase) *socking* it heavy' to Mr. Sprague."

This suggests a derivation for "sockdolager." *Spudgeon* synonymous with *scrimption* and *stooter*, meaning a mite. *inally*, there is a word known in Delaware that may have *und* its way across the border: "He's *overing* the bilious" (*idelicet* fever). Like many of the foregoing, its home is in the North of England. P. CHAMITE.

A MONSTER AEROLITE has recently fallen in Fezzur, near ourzouk. It weighs nearly five thousand pounds, and is ought to be the largest meteoric body yet discovered.

UNIVERSITY EDUCATION IN GERMANY.

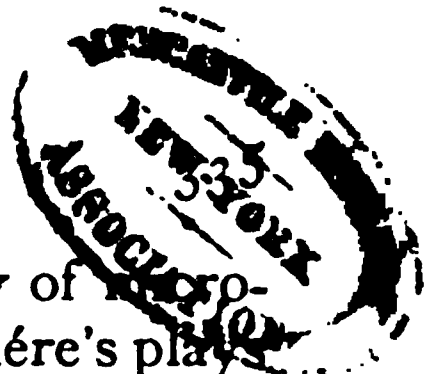
PART THIRD.

THIS constant harmony between the state of education and the advance of science, is furthered, in Germany, by the absence of anything like a curriculum. This is a very important point. There are, properly speaking, no *chairs*; there are only *professors*. The Faculty is not formed by the combination of a certain number of courses; it is a corporation of professors, who teach after their own fashion. In proportion as the sciences advance, not only are new men added to the Faculty, but each professor varies his instruction according to the tendency of the times, instead of being obliged to conform, even in appearance, to the announcement of a programme which was countersigned by a minister of state some twenty years before.

If he makes mistakes, if he follows the wrong path, the *privat-docenten* are there; they will not fail in their own interest to supply any omission in the instruction of the professors. Is a place made vacant by the death of a professor, it is not thought necessary to appoint some plodding dullard to fill it, whose only merit is that he has religiously followed the beaten path. The Faculty does not bind itself to continue any of its courses. In the last six years, the Faculty of Philosophy at Berlin has had to replace three ordinary professors, two of chemistry, and one of astronomy; it has secured a physicist, a mathematician, and a palæontologist.

The German system of education, thanks to this freedom of the professors, which is the very basis of the method, has acquired a multiplicity, variety, and adaptability which is far beyond the reach of the most enlightened and foreseeing central administration. Every branch of science, no matter how special, though it be the growth of yesterday, has the right of citizenship in the university, and invites students. We should like to give an entire list of the courses delivered during the last semester in one of the greater Faculties of Philosophy. There would be found all the natural, historical, and social sciences more or less fully represented,

University Education in Germany.



ding to the interest of the times; the theory of micro-observations by the side of postal law, Molière's plays by the side of the monuments of the Trojan cycle. French law is expounded at Munich, Würzburg, Freiburg in Breisgau, Berne, and Heidelberg. Instruction is given in various ways. One professor comments upon a work he is about to publish, another simply describes a journey he has just made.

It is not unusual for a course on the literature of a foreign language to be held in that tongue, in French, Italian, or English. At some of the older Universities, the lectures are given in Latin. At Prague, there are some young *privat-docenten* who instruct in the *czech* language.

Each professor holds generally two courses at the same time, or even three, for which he charges different fees. On the programmes they are styled *publice*, *privatim*, *privatissime*. Lectures *publice* are those for which the student has only a minimum fee to pay. These are the most numerous. Others are, if it is desired, a sort of conferences, or

recitations, the price of which is sometimes higher, which none the less are announced upon the official programme, and are often held in the rooms of the University.

They are generally upon some very special point, or of a more practical nature than the others. One professor may lecture in one of his courses on meteorology, and another on experimental physics. Bopp lectured *publice* on Sanskrit, and *privatim* on the comparative grammar of Sanskrit, Latin, and German.

Very little importance is attached to the form. The lectures have no oratorical pretensions. The only care of the professor is to be understood. Some, in the great cities, have occasionally tried to break through the old academic isolation by inviting the outside public. At Berlin, we saw an attempt of this sort on the part of DuBois-Reymond. On the evening of every week, the citizens of Berlin would fill into the great amphitheatre of the University, which, however, does not contain more than 360 places. The students were few, the majority were men of a certain age, scientific amateurs, old students of the University, who were happy to be once more within the walls which had witnessed their youthful studies. The learned professor read

his lecture, which he tried to make eloquent. It was upon the recent progress made in the department of biology—spontaneous generation, the antiquity of man, palæontology, he treated of them all. This method of lecturing, of which one can form an idea from the conferences of the Sorbonne, save that there were no ladies present, and that no experiments were made simply to amuse the audience, was so opposed to the old University usages, that it could not fail to give rise to some slight feelings of jealousy. When the students saw this eminent physiologist discussing thus all varieties of subjects, they said, somewhat maliciously, that he aspired to succeed Humboldt. They said, too, that these lectures, given before a public composed solely of amateurs, were of no use for the progress of science, and that DuBois-Reymond would have done better to leave the business of vulgarizing knowledge to those who had not advanced it, as he had done.

Nowhere in Germany are there large halls like those at Paris, or in some of our provincial towns. The lecture-rooms are small, often inconvenient, and poorly lighted. In fact, the first corner one can find is good enough. Von Siebold, at Munich, lectures in the garret of the museum. A sort of intimacy is very soon established between the professor and his pupils by the very special nature of the lectures and the small number of students who attend them. A few years ago, Ewald, the celebrated oriental scholar, at Göttingen, was confined to his bed by illness. He gave his lectures in his chamber. The students, seated around the bed, were busy writing, while Madame Ewald attended to her household duties. It is nothing uncommon for the lectures, even *public* lectures, to be given at the professor's house. Five or six of us attended Ehrenberg's lectures. He received us in his study, in the midst of his microscopes, his books, and his menagerie of infusoria bottled in tubes. We would talk about the last meeting, ask the explanation of some matter which would cause a long digression; in looking for one creature in the tubes, we would come upon another, and the lecture had to be begun anew; or else it was some obscure reference that had to be explained, and we rummaged through the library; and the result was, that

all their interruptions and irregularities, these lectures are most excellent and profitable.

His disdain of all show, and this simplicity, are not mere fashions; they are related to the very essence of man's instruction. The professor teaches as he works; his courses are only an exposition of his method. He explores and shows how a subject is to be explored. It has been said that a German professor "works aloud" before his pupils; the phrase is very accurate. In France, our scientific professors confine themselves to showing the results that have been acquired. This is, moreover, the traditional method established by the existence of a programme for the lectures of the Faculty. Last year, Herr Von Sybel, professor of history at the University of Bonn, criticised our method very sharply in an academic discourse upon German and foreign universities. He said: "In France, the teacher announces the results of researches which have often been long and laborious, but he does not say a word to his pupils of the intellectual operations by which these results have been reached. In Germany, on the other hand, the professor's aim is to teach the student the method of a science; an attempt is made, not to make him a savant, but to give him a clear idea of the problems of science, and of the operations by which these problems are solved." In a general way, these remarks are well founded. His mistake is that he extends them to all French teaching. There are exceptions; we might mention courses at the College de France, which correspond exactly to Von Sybel's ideal. The professor has no programme; he teaches what he pleases, the most special subject or the obscurest question, and he seeks to enlighten himself as well as his hearers; his lecture-room becomes his laboratory while he is instructing. Instead of a great number of pupils, never to be found at a course of this kind, he has disciples, he founds a school. This is higher education in its loftiest aspirations.

GEORGE POUCHET.

SOME teachers believe in a word and a blow, and the blow is always a harsh word.

CHARLES DICKENS.

DOUBTLESS in all the world there is no man of letters whose death could cause so widespread and sincere grief, and a grief that was in very many hearts so profound, as that caused by the death of Mr. Dickens. Not only wherever the English race exists—in the British Islands, India, at the antipodes, and round the world again to America, where he has given happiness to millions of readers—but also in almost every country, within the limits of civilization, the creations of his pen have for many years been familiar figures, and have attracted to him the strongest liking as well as the high admiration of innumerable men and women and children. Every great author has a multitude of friends whom he has never seen and will never see, but there can none be named, of any tongue, who might not be taken away and leave behind regret for his loss in fewer households than have been saddened, the world over, by the death of this most beloved of story-tellers. Opinions might differ as to his place among men of genius; and there have even been more opinions than one as to his right to be ranked among men of genius at all; nor has he been without enemies; nor did it happen to him more than to others to go through life without giving to his enemies some grounds for their attacks; but that he had a generous and loving nature, delighting in happiness and in conferring happiness, was never denied by those who cared for him at least; and in hearts that knew the kindness of his he has long had a home. It is good criticism of him—whether or not it was meant to be other than eulogy and a tribute of admiration—when Thackeray, at the end of the “English Humorists,” relates of one of his little girls how when she is sad she reads “Nicholas Nickleby;” when she is glad she reads “Nicholas Nickleby;” and when she is tired or ill she reads “Nicholas Nickleby;” and when she does not know what to do there is always “Nicholas Nickleby” to read; and when she has done reading it she begins it over again, and is constantly asking her papa why, instead of writing certain other novels, he

does not write one like "Nicholas Nickleby." Mayfair, and Brighton, and the conversation in the club-room windows, and Mr. Pen's indifferentism, must indeed have seemed either meaningless or hateful to the soft heart and the untutored taste of the little reader when she put her father's work into comparison with the lampblack-and-lightning picture of the villany of the wicked old Ralph; and the patience and impatience under all he had to put up with of ragged Newman Noggs; and the cruelty and subsequent righteous downfall of Mr. Squeers; and the badness of the young Squeers; and the wretchedness and piteous end of poor Smike; and the heartiness of Mr. John Browdie, and of his Yorkshire puddings and game-pies. In all this, kindness of heart which everybody can appreciate, and a disregard of the niceties of art, or, indeed, an obvious ignorance of them and insensibility to them, are the things most striking.

It is probable that no truly good writer gets his true audience in his own generation. He must wait and he must learn to be content at first with being liked for things in him that are not essential. His true public, which values him for what in him is really and always valuable, is made up from the capable readers and writers of successive generations. We do not know with precisely what accuracy it is said, but they say that of all Dickens' stories the one most successful with the contemporary public was that in which is narrated the life and death of "Little Nell." And it would, perhaps, be possible to prove—as, indeed, it would be not unconsonant with the affection for him that most of his readers feel—that it is for his pathos, or at least for his sympathy with the suffering, rather than for any other quality of his, that most of his admirers admire him. He himself, as he reads his works, seemed to value as much as anything such things as the account of "Tiny Tim" in the "Christmas Carol," and it is to be presumed that so experienced a reader to popular audiences knew what hit the popular taste.

But that in estimating the true greatness of the man we shall do better, as regards success in getting at his exact value, to put out of consideration all the pathetic parts

of his writing, and everything in his books by which he has a hold on the tender-heartedness of his readers, there seems to be little room for doubt. It is not by his "Little Nells," and "Paul Dombey," and "Smikes," and "Tom Pinches;" nor by his attacks on the workhouses and the Circumlocution Office, that he is to live; and his title to enduring fame is more firmly based on the "Pickwick Papers" than on "Bleak House," or the "Old Curiosity Shop," or "Barnaby Rudge," or the "Tale of Two Cities." Strong as he is as a melo-dramatist, and elaborate as he is in his appeals to the feelings, and earnest as he no doubt was in his hatred of injustice, and skilful as he now and again shows himself to be—as for instance in the case of the hero of the "Tale of Two Cities"—in divining the depths and intricacies of a real character, and voluminous as he is—for he must have been one of the most industrious as well as prolific of the authors of our day, and leaves behind him an enormous number of printed pages—noteworthy as he is in these various ways, it seems certain that he is to be read by our children's children for the use he made as a humorist and a humorous caricaturist of his remarkable powers of observation. Mrs Nickleby and not Lady Dedlock, Mr. Micawber, Tony Weller, the Shepherd, Sam Weller, Mr. Bounderby, Mrs Jellaby, Mr. Pickwick and Mr. Winkle, Old Willett, Dick Swiveller, Capt. Cuttle, Mr. Pogram, Mr. Hannibal Chollop Mark Tapley, Mr. Toots, Susan Nipper, Mr. Simon Tappertit, Mr. Wegg, Mr. Alfred Jingle, Mr. Pecksniff, the young man by the name of Guppy, and the young gentleman known as Young Bailey, and greatest of all, Mrs. Gamp the friend of Mrs. Harris—doubtless it is in virtue of having produced these figures, representing with the truth of humorous distortion some laughable trait of character, some class in society, some odd phase of humanity—that the favorite author of our generation will go down the stream of time. Many a generation will read him for his fun that will shed no tears over him—whose tears there will be contemporary pathos to call out, for the benefit of writers who will know how to touch the easier springs of tears as well as any of us know, or any of the men and women knew who made our grandfathers and grandmothers weep and who make none of us weep now.

The list we have given of vividly colored figures which it is not too much to say have now for years been a portion of the mental furniture of millions of mankind, is a long one; but how it might be lengthened everybody knows. There are Master Bitzer and Cousin Feenix, and Joe Bagstock, and Mr. Barkis, and Mr. Venus, and Uriah Heep, and Miss Rotwood, and Mr. Dick, and a hundred more whose right enumeration might be insisted upon. Perhaps, had the list of his works been shorter we should not now be lamenting the death of the artist, who crowded into his lifetime a quantity of work which gives as strong evidence of his capacity to labor and his industrious habits as the quality of his work gives of the native power of his mind. Dying in his fifty-ninth year, he was the author of eighteen or twenty long novels, of scores of short stories, such as the "Christmas Carol," of columns on columns of writing for periodicals, of two or three of which he was editor, of countless speeches, and of letters unnumbered. This strength and activity he may be excused for having tried too much, for they must have seemed to him unbounded.

He began life as a student of the law, his father, who was at one time a Government clerk, and afterwards a short-hand and reporter, having articled him to an attorney, to whose office we may suppose ourselves indebted for some part of Mr. Sampson Brass, and Mr. Swiveller, and Messrs. Dodson & Fogg, and Sergeant Buzfuz, and Mr. Spenlow. Using his eyes on the outsides of attorneys and bailiffs was, however, more to the taste of the student than using them on the sides of law-books, and it was not long before Mr. Dickens turned himself on the press, and studying short-hand. He is likely to have made a very good parliamentary reporter, and everybody will remember how in "David Copperfield" he describes his troubles as a learner of stenography. Some of his late speeches, too, bear witness to his having experienced some of the trials of the journalist. But as he later discovered when he attempted to conduct the *Daily News*, that it was not in the higher walks of journalism that he could do his best work, so he early discovered that he could do better than reporting. He was hardly of age when he published his "Sketches, by Boz," which, although timidly

written, are specimens of the vein which very soon afterwards he opened in its full richness. They resemble the sketches now known to all the world as "The Pickwick Papers," which probably may as a whole be called his best work. Here and there in the other books there are to be found particular passages and personages which may perhaps be considered better than anything in "Pickwick." Mrs. Gamp is perhaps still better than Tony Weller; but though Mr. Dickens afterwards brought to his work greater power of thought and greater depth of feeling and more artistic faculty, it may be maintained that his best writing in his proper line he did at the age of twenty-five. Having written the "Pickwick Papers," which at once became irresistibly popular, Mr. Dickens became convinced, evidently, that he had found his true vocation, and thenceforward he was a story-teller and humorous caricaturist—now in magazines, now in pamphlets, now in volumes, sometimes melodramatic, sometimes humanitarian, always with effusive good nature, often with defective taste, never, apparently, with a just notion of the limitations of his powers, but always attaining the story-teller's success of having an immense number of eager listeners, and with each new story making it plainer that as a humorous caricaturist he was without an equal.

Of such a man, living such a life, and of books such as he has left, a thousand things might be said and will be said. Those who knew him personally will long be busy repeating proofs of his activity, his usefulness, his courage, his kindness; and the books are secure of being regarded as a part of the intellectual wealth of the world. It is enough to say of him now and in this place, by way of expressing the respect which it is proper to express at the grave, that he was as widely beloved as he was widely known, and that he has so much that is permanently admirable that he can afford to lose most of his present admirers.—*The Nation*.

TEACHER, when tempted to speak in anger, remember this: one angry word may do what hours of patient toil can not undo.

ROCHEFORT.

COUNT VICTOR HENRI ROCHEFORT DE LUCAY is the full name and title of a man who for the last two years has been the most conspicuous among all the antagonists of the Second Empire—a man on whose character and principles the most conflicting opinions exist. He is the descendant of an ancient and noble French family, and was born on the 29th July, 1835. At a very early age he had to work for his own support, his father having ruined himself by unfortunate speculations. He had to give lessons, and was happy to be appointed to a small office in the City administration, yielding an income of no more than 1,200 francs. The slander of his powerful enemies has spread disgraceful reports about his early youth and manhood, in order to degrade this formidable writer in the esteem of the world; but none of those calumnies has been supported by the slightest proof. Those that are best informed on the antecedents of this remarkable man assert that his whole life has been of irreproachable integrity. Disdaining the means by which the members of high families know only too well how to get along in life, he preferred to earn his little income by hard and incessant labors, and by it not only supported himself, but also his aged mother, who was entirely dependent on him. Having poetical and dramatic talent, he first increased his small earnings by writing some vaudevilles, and articles for the “*Petite Presse*.” These productions soon drew attention to him. In 1859 he was engaged as an associate editor of the “*Charivari*,” and in 1860 of the “*Nain Jaune*.” Afterwards he was made one of the editors of the “*Soleil*,” and of the “*Figaro*,” with a monthly salary of 3,000 francs. His success was brilliant and almost unprecedented. His great aim was to uphold the cause of Liberty, Justice, and Morality against the frivolity of the Second Empire. But he never joined in the demagogic chorus of the ultra-democratic press, and we must not confound him with those unprincipled writers who pervert truth into falsehood to make it subservient to their party ends. His language is as remote from the smooth sophisms

of the time-servers and trimmers as from the violent tirades of fanatic mob-leaders. To appreciate at once both the purity of his principles and the unprecedented skill with which he always opposed the venality and rottenness of the Second Empire, it is only necessary to read his books "*La Grande Bohème*," "*Les Français de la Décadence*," and "*Les Signes du Temps*," which contain all the articles written by him as associate editor of "*La Petite Presse*." And, indeed, the Imperial Government estimated his great qualities as a writer and a man at their true value. One day the proprietor of the "*Figaro*" was summoned, and the alternative proposed to him either to have his journal suppressed, or to dismiss Rochefort from the editorial chair. Rochefort, accordingly, resigned, and established his "*Lanterne*," the first number of which appeared in June, 1868. Every one knows the unprecedented success of this paper. Inexorably and without mercy he attacked both persons and things. Every word in it means annihilation. Every arrow rankles in the flesh of the enemy; in every new line a new probe is applied to the old wound.

The "*Lanterne*" first broke that death-like silence that, since the 16th of February, 1852, had made the French atmosphere so oppressive and poisonous. Rochefort pronounced only what all good men for sixteen years had thought by themselves. He both saved and revenged the conscience of a whole nation against a man who, by undertaking to feel, to think, to act for this nation, had inflicted on it the most cruel and humiliating of all possible insults. Thus Rochefort became the man of the hour, and when he succumbed in his struggle and fled to Belgium, the sympathy of every upright and good man followed him into exile. For we may properly say, he was at that time the representative of their own CONSCIENCE—and, indeed, of the FRENCH conscience. To-day Rochefort is the representative of REVOLUTION, or rather of that revolutionary current which ultimately will sweep Imperialism away. He is the most pregnant and pronounced type of the "*Irreconcilables*"—a second Cato Uticensis, but distinguished from him by greater fire, greater ability and—a better cause. The language spoken by the first

is district, when they elected him to the Chamber, is that he Marseillaise, and unmistakably the future language of France. Look into the balance-sheets of the Third Napoleon! The figures of the credit, let them be a hundred times as large as they are, would dwindle into mere ciphers in comparison with the gigantic, crushing figures of the debit. Who can count the myriads of corpses that fell victims to the remorseless ambition of that schemer? But, countless they are, they are nothing if compared to his moral vices. For the most nefarious of all his campaigns is that in which he declared war against Truth itself, poisoning the moral feelings and lowering the moral standard of a whole nation. On this battle-field the slain, the maimed, the mangled count by the million. It is as if the ghosts of the slain were living in Rochefort, and we begin to see that after all the little man in the Tuileries has—a conscience. The handwriting is not less legible on the walls of the Tuileries than it is on those of the Babylonian palace.

LOUIS GRENOBLE.

THE MASSACHUSETTS LABOR BUREAU ON EDUCATION.

THE following worthy and well-merited testimony with regard to the value of the common schools of New England, is extracted from the very able report lately issued by the Bureau of the Statistics of Labor, which was appointed last year by the Legislature of Massachusetts. After an examination into, and exposition of, the abject condition of the male and female farm laborers of Great Britain, their hopeless ignorance, gross immorality, and wretched poverty, the following contrast is drawn:— One cannot refrain from the conclusion, after reading reports from which these very spare gleanings are made, that, in all intellectual matters, the field laborers of England were mere children in contrast with the grand race of men who till the soil in New England, and own the soil they till; and the reason is found easily and at once, springing up in every man's mind spontaneously. EDUCATION has made men of the latter, and the neglect of it has kept the former in a

dwarfed childhood. Here we have the two, and the cause of their differing ; and the duty pointed out by this difference is as clear as the sun. Educate at any rate—educate at any cost—educate at all hazards, no matter ‘ who chafe, who frets, or where conspirers are,’ educate the laborer, and so save him and preserve the Republic.

“ Educate, not with the one solitary idea so often set forth by committees of schools and boards of education, that education may help a body to get ‘ on and up’ in the world ; but educate so that wherever a man may find himself at any given time in his life-journey, he may dwell there pleasantly to himself and household, and profitably to the world by example and effort ; and this in every vocation, whether called on to go ‘ up’ higher or to go ‘ down’ lower, as the world calls places, remembering that when the things of earth and social life are right, these terms will become obsolete.”

Per contra, we are notified in the same excellent report, on page 70, that, “ Within memory the poor have been auctioned out in New England, and so has the district school teacher.” It is different now ; the value of the intellectual producers of the nation is beginning to be recognized and recompensed. But as there are some who, even yet, conceive general education to be an act of charity rather than a sacred public duty, the above extracts, commending its efficiency in the New-England States, are respectfully submitted to them for their perusal and enlightenment.

R. W. HUME.

SCHOOL-BOOK AGENTS.

THE principal school-book publishers of the country came together in a pleasant way a few weeks ago, and wisely concluded to make some changes in their method of carrying on the school-book business. One of these changes is the withdrawal of all traveling agents after the first of July. There are now in the field some three or four hundred of these agents ; some of them accomplished and

larly men, very many of them intelligent and shrewd, a few of them, it must be confessed, "bores."

What is to become of this noble army of martyrs we do know. They have our sympathy. We know something of their labors and abilities, and we can but hope that some other worthy field of labor will gain what the educational field is now to lose. Their desire to have every scholar furnished with the best school-books has been truly laudable, and their little sacrifices to bring about that result will be long remembered. Many a committee-man, many a teacher, as he looks upon his library shelves, be gratefully minded of the kind book-agent.

Representing princely houses, they have often conducted in a princely manner. If Webster's Quarto Pictorial was necessary to make plain the merits of a school-book, which would be cruel to withhold from the children, in some mysterious way the huge quarto appeared, and the children were blessed. If they came across men who could not see the good points of a school-geography till they had studied the great atlas of the world, the big atlas was laid upon the centre table, and never taken away. Encyclopædias, professional works, school apparatus, even those highly-finished works of art, portraits of distinguished public men, like at the U. S. Treasury Department, and attested by proper signatures, have not been withheld, if they could assist in securing the best text-book for the children.

But publishers now say, no more bribes, no more subsidies, no more agents. Their books are before you, and if you cannot ascertain their merits without such aids, you must remain in delightful ignorance. Committees and teachers will therefore see that a greater responsibility is laid upon them. They must take the *Massachusetts Teacher*,¹ and carefully read its advertising pages; beg to borrow the books advertised, and after a careful examination come to the best conclusion possible. We do not know but it will be the duty of the editor to examine new books more critically,² and render what assistance he can in bringing out

¹ Or some other good Educational Magazine.

² The Massachusetts Editor very carefully expresses himself. It must be that he intends to do so, and tell the truth about books. We shall see.—Editor *American Educational Monthly*.

their merits or demerits. Let us all accept the new state of things, and still have the best books in our schools.

We will add more seriously, that we welcome this movement on the part of publishers to reform the methods of introducing new text-books into our public schools. We see no objection to agents. Business competition and personal rivalry, no doubt, have led some agents to go beyond what is strictly honorable. They, however, cannot be made the scape-goats for the evils so generally deplored. They seldom go beyond their instructions. There are men on the school committees in most of our large towns who are no judges of text-books, but yet can be influenced to favor this or that book by certain considerations; men, too, who might be good judges, open to the same influences. Nor is the number of teachers small who will, independently of merit, favor the books of a house which shows the most favors to them. Whatever has been dishonorable in past transactions in relation to the school-book business, must be shared by all the parties concerned. Let school committees and teachers say, we will not be bribed—we will be honest and just in our recommendation and selection of text-books; let publishers say, we will not bribe—if our books are taken, they shall be taken on their merits; agents will then be not only harmless, but useful.

Even did we believe, with some others, that book agents are unmitigated evils, we should hardly dare believe that we had seen the last of them. Personal appeal is too effective to be entirely dispensed with. Publishers will not let good books lumber up their shelves when benighted districts are suffering for them—at least, we hope they will not. First, one and another educational missionary will be sent out; and, by and by, each house will have its special agents in the field as before. There is certainly a legitimate and proper work for the book-agent; and, while he keeps to that, he benefits not only employer, but the community. The men who are really good judges of a text-book are few: most require to be helped to see a good thing.

The present state of things has grown mainly out of the rivalry between publishing houses. The "Battle of the Books" as described by Gail Hamilton is a misnomer, and

a pop-gun affair as compared with the school-book battles in State capitals for State supremacy, or in large cities in a commanding position. Just now, no doubt, a general armament will be beneficial to all concerned. Whatever battles must be fought in the future, let the weapons be the best text-books that can be produced; and all hurling of big dictionaries, and plastering over eyes with greenbacks, be led out as unfair.—*Massachusetts Teacher.*

CORRESPONDENCE.

A COMMON PLACE BOOK.

IR. EDITOR,—Believing that your valuable journal might possess still greater interest if, after the manner of a Method-class meeting, teachers should relate their experiences to each other through its columns, I give a practical suggestion growing out of my favorite department of instruction.

It has been my custom for years to keep, in an ordinary Common-place Book, the best thoughts of my scientific reading and teaching. Whenever I meet with any fact which I think may be serviceable in school, I make a note of it, under the proper heading. If, in recitation, any explanation or illustration is especially successful in fixing the attention of the pupils, or in elucidating a difficult subject, after school I write it down. If a pupil asks a puzzling practical question, I prepare it in this way. With each term of teaching I thus gain a store of information to help me thereafter. All the cream of my experience is daily "skimmed" and put away for ready use. The value of this in finding myself of casual illustrations and happy expedients to which I have resorted at one time or another is so great, that I can confidently commend the plan to my fellow teachers. As a sample of my collection, I give the following excerpts made at random.

1.) *A mechanical explanation of mirrors and lenses.* Hold my fingers before my face, so as to represent the rays of light as coming to a focus at my eye; then show how, if converging rays enter my eye, I see the object on diverging rays, and the visual angle is increased. Next hold my fingers so as to represent diverging rays as entering my eye; then show how, in that case, I see the object on converging rays, and the visual angle is decreased. Then let the class repeat the foregoing form in concert, varying it in making the application to the different kinds of mirrors and lenses:—

The effect of a concave (*convex*) mirror is to collect (*scatter*) rays of light. Converging (*diverging*) rays enter my eye, I see the object on diverging (*converging*) rays,—hence the visual angle is

increased (*decreased*) and the image is correspondingly larger (*smaller*) than the object.

(2.) *Chemical Query*. Saleratus being white, why are its spots in cuits yellow?

(3.) *Chemical Query*. Why are black-ink spots brown?

(4.) *Curious freaks of Electricity*.¹ In the summer of 1865, the house of Mr. Howell, of Newark, Wayne Co., N. Y., was struck by lightning. After the storm, the parlor carpet—a Brussels carpet, well stretched and tacked down—was found lying on the floor in its place, so expanded as to be full of folds and puckers.

Query. Could it have been that the air under the thick carpet suddenly expanded by the heat, lifting up the carpet in the centre thus stretching the fabric?

In the terrible storm of May 19, 1870, the house of Mr. Fred. H. Elmira, N. Y., was struck by lightning. The electricity evidently entered the cellar from the ground, passing upward through the pipe, which it opened so as to permit the escape of a jet of gas, then ascended along a copper bell-wire to the second floor where, meeting a japanned iron angle near the ceiling it leaped off to the tin lining and eave troughs of the roof. At this point, it tore a door from its hinges, splintered the casings, wrenched loose the tin strips, threw out the nails, and thence passing along the eave trough, it descended the tin conductor to the ground again.

Query. Did the electrical condition of the ground change when the electricity was making this tour, so as to be negative the force to which it had before been positive?

(5.) *The Metric System*. Dr. D., an unquestioned authority on the subject, tells me that the metric system has received an official quietus in France, and has proved a failure in Brazil and other countries in which it had been adopted. It can certainly never come into practical operation in the United States. It seems everywhere to hastening to the same ignominious end with Phonetics, New Nomenclature, Velocipede mania, and other similar epidemical reforms with which the scientific world and humanity in general is so often and so uselessly afflicted. *Query*. Is each one an irritating plaster cure or kill the preceding distemper?

(6.) *Comets*, says M. Flammarion, have been seen several millions of leagues long, the weight of which was yet so trifling that one could have carried them on his shoulders without fatigue. But what an unwieldy burden this world would be to carry about! Its length would be like that of Archimedes' imaginary lever. Ambroise Paré, speaking of the comet of 1528, says—"This was so horrible and frightful that so many people died of fear, and others fell sick. At its summit was seen the figure of a bent arm holding a large sword as if about to strike. On both sides of the rays were seen a great number of axes, knives, and swords of the color of blood, among which were a great number of human faces with rugged beards and locks." He even gives a picture representing these monsters as they were collected in a formal heap in the comet's body.

J. D. S.

¹ These instances occurred within the writer's personal knowledge.

[We welcome this suggestion to keep a "Common Place Book," by Prof. J. Dorman Smith of Elmira, N. Y. Whatever has been found serviceable by so successful a teacher and author hardly fail to be worthy the attention of teachers generally.—EDITOR.]

NORTH BARNSTEAD, N. H., July 20, 1870.

MR. EDITOR,—In the June No. of the *Monthly*, in the table of "State School Officers," the name of Amos Hadley appears with the title of "Supt. of Common Schools," for New Hampshire. Mr. Hadley's term of office expired June, 1869. His title was "Supt. of Public Instruction." The office was created June, 1867.

The Superintendent is appointed by the Governor and Council for two years, with an annual salary of \$1,200. Anthony C. Hardy was appointed in June, 1869, and still holds the office. Sometime last spring, but without date, he issued the accompanying proclamation. This is his only public act that I have heard of, and, so far as I know, none of the promised articles have appeared. But we have some thirty odd papers in the State, and I do not see all of them.

We had a "New Hampshire Journal of Education" which suspended publication, December, 1862, at the close of the sixth volume. Report says it had 250 subscribers, but I cannot vouch for the truth of the story. On the cover appear the names of twelve associate editors—two ladies. The resident editor was constantly *dunning* for "contributions" and so was the Finance Committee. The last No. contains the names of the members of the New Hampshire Teachers' Association, thirty-two ladies and seventy-two gentlemen.

Very respectfully,

R. F. HANSCAM.

We print the "proclamation" alluded to.

To Teachers, Superintendents and Friends of Education in New Hampshire:—

The question has often been asked me, "Why cannot we have an Educational Journal in New Hampshire?" My answer has been—"Because we cannot sustain it." But measures have been adopted whereby articles on Educational topics can be widely disseminated and thereby do more good than by a journal exclusively devoted to that cause.

Several of the leading papers in the State have offered their columns for our use—I presume that any and every one in the State would freely do the same. Some teachers have already signified their willingness to prepare a number of articles. We would like to hear from *all*, and have enough written so that we might supply at least one article each week, in every paper in the State. Come then, teachers and friends, let us hear from you. Send your articles to this office (State Superintendent of Public Instruction) and I will see that they are distributed.

Articles may appear over your own name, or a *nom de plume*, but we must know the name of the writer. The press is the best means for diffusing general knowledge, and awakening public attention and interest; it now remains for the friends of education to say whether its influence shall be felt in our State in the cause of education.

ANTHONY C. HARDY,

Supt. of Public Instruction.

HONOLULU, H. I., May 22d, 187

ON the 14th of February, 1779, Capt. Cook landed on the north side of Kealahou Bay, at the village of Kaawaloa, then the principal town on Hawaii, and the place of residence of the aged King Kalaniopuu. Having nearly exhausted the whole island of provisions, by the enormous contributions from the natives, who, supposing him to be the god Lono, offered, readily, anything demanded to obtain his divine favor, having been solemnly installed among the most venerated deities of Hawaiian mythology, having received the sacrifice and worship of a god on numerous occasions, and then having torn down the sacred temple in which he had himself received divine honors and carried his associate gods on board his ship for fuel, and having proved his mortality by a lust and rapacity, illy according with the generally received ideas of the "great navigator," he had landed on this eventful morning, for the purpose of removing to his vessel the monarch who had for nearly a month placed the whole resources of his kingdom at the disposal of his wonderful guest. In retaliation for a gross outrage upon one of their chiefs, a boat had been stolen the night previous from the English ship, and the English captain demanded the person of the king himself as a hostage for the return of this boat. He had succeeded in leading the old king down to the beach amidst the thousands of excited and exasperated natives, when the chief leapt from his canoe and exclaimed, "*They have killed Kalaniopuu, and they now wish to murder our king.*" In a moment, amidst the wildest confusion, Capt. Cook fell forward into the water, mortally wounded, by a blow from a knife, which his own smith had made and sold to a chief but a few days before. His body was carried by the fleeing natives up the mountain, where the bones were denuded of flesh which was burnt. A part of these bones were afterwards returned to his friends, others were worshiped as gods, and it is said and believed that one of the bones of his arm now lies in a pillow under the head of a chieftess in the royal mausoleum in the suburbs of Honolulu.

Those who witnessed the death of the "*great god Lono*" have all passed to their fathers, but many of their grand children still live, and their version of this sad event, sheds a different light upon the deeds from that emanating from English pens, which streamed across the sea and excited our childish pity for the hero, and loathing for the horrid cannibals that slew him.

A few months since it was my fortune to stand upon the same rock where Capt. Cook fell. About two hundred feet from the spot was the foundation of the king's house, consisting of a wall about twenty feet square, raised two feet from the ground and filled with stones broken to the size of a filbert. Upon this platform once stood the palace of a monarch, constructed of small poles firmly bound together, and covered with a thatch of native grass. A square aperture in the side facing the bay, screened by a piece of native cloth, constituted the door, and many curiously woven mats served at once for floor and beds for native royalty. Many other smaller, but similarly constructed pebbly platforms marked the sites of the dwellings of the noble retainers, whose birth and rank permitted them to approach the sacred presence of the great king and live. A few rods to the rear of the king's house a large tomb of a high chief, surrounded by a wall of volcanic rock, admonishes the curious traveler that human glory and greatness find the same soil here as in other lands. A grove of cocoa nut trees, whose long graceful leaves shaded the dusky warriors that slew Capt. Cook.

I furnishes food and drink to their few descendants, while their trunks offer a ready means for immortality to the numerous members of the Smith and Fitznoodle families who always travel with a pocket knife or a bit of sheet copper, bearing their monograms or memorial bearings. From these data I learned that Johannes Smythe, John Smithe, John Samythe and J. Smith, Jr., together with Sir Arthur, De Bracy and Sir Tomphool Fitznoodle, Barts., and Commanders H. B. M's. ships Lion, Tiger and Growler, had all added sanctity to this sacred spot, by pressing its pebbles with their patent leathers. The right three or four small grass-houses, blistering in the tropical sun while a pack of yelping curs and a few half clad natives bring from their huts to note our approach and to wonder why we are clambering over the boulders that lined the shore, remain as the representatives of an ancient city that once sent an army of thousands forth to battle, and whose rulers could trace lineage to a more ancient and noble ancestry than could William the Conqueror's those who fought under the Roses. About half a mile from the landing on the side of the mountain, lies a region more wild and desolate than the imagination can paint. The recent battle field of the Titans, horrid with its ridges and chains of jagged rocks, scathed and seamed by the angry bolts of Jove, affords but a faint picture to a world in ruins. From the midst of this desolation a stone monument rises in the skimmering air and informs the traveler that here the natives removed the flesh from the bones of one, who with Alexander and Herod, courted divine honors and whose end was nearly as terrible as theirs.

Kealakekua Bay is about three miles wide and extends inland about four miles to a precipice that "rises perpendicularly four hundred feet from the surface of the water. From a distance, the face of this precipice appears dotted with round black spots. On a nearer approach, however, these spots resolve themselves into the mouths of caverns which extend far back into the mountain, some of them probably nearly to the summit of Mauna Loa, distant about forty miles. The diameters of these caves vary from two to fifteen feet. They were doubtless formed by the lava, which, having cooled on the face, remained in a sufficiently liquid condition to empty the ducts, or the supply from the fountain head had ceased. They exist at all heights from the surface of the water to the top, and of course mark different lava flows that have occurred at that point during long cycles of time, since the first foundation of Ke-ala-ke-kua (the road of the god), rose hissing from the bed of the ocean. From time immemorial, these caves have been used by the natives as places of sepulture for their dead. To those gazing upon the overhanging cliffs it is a source of marvel how rude savages were able to reach these caverns, many of which were so high from the water that they were accessible only by means of ropes, hundreds of feet in length, let down from above. One of these still contains the ashes of some of the old chiefs.

It was a general practice, however, to destroy utterly, or conceal, and the possibility of finding, the bones of their high chiefs

and kings, lest their enemies should work them into charms or fish hooks. The spot where rests the dust of the great Kamehameha remains a profound secret to the present day. His bones were committed to the care of two faithful servants who would sooner have yielded their lives than betrayed the sacred trust reposed in them. Singing over the bay in a native *dug-out*, we arrived at the village of Kealakekua, a native hamlet of fifteen or twenty houses, mostly the common grass huts of Polynesia. Here I found a wiry specimen of

the genius Yankee, who had left his wife and children some wh down *East*, to shirk for themselves, and was engaged in selling *dog* and Jewsharps to the dusky sons and daughters of those who had w shipped the great Lono. A short distance from his store are still walls and pebbly floor of a great *heiau* or temple, in which C Cook, in his divine capacity, received sacrifices of putrid sw and other choice tit-bits, such as were pleasant to the palates of associate gods. Here he suffered his face to be smeered with co nut, chewed fine by a filthy old native, because this was the sac nectar and this the sacred manner of *imbibing* it.

This temple served as his shrine, sail loft, carpenter shop, smithy. It was to the Hawaiians one of the most sacred spots in whole group, and to the outrages perpetrated in and around it, by orders or permission of Capt. Cook, he owed his terrible and untim end. A few rods to the rear of this, a similar stony platform ma the site of another *heiau* in which was trained for the priesthood historical character, Opekaia, sympathy for whom in New Engla first turned the attention of Christians to these islands as a field promise for missionaries. Between this old *heiau* and the stone st two cocoa nut trees, pierced by shots from the cannon of the Resc tion, during a *melee* with the natives. To an American these ruins vastly more than mere mementoes of a heathen worship that passed away. They stand as a monument to mark infamy and c rage, perpetrated by an English national vessel, upon an unoffend people at precisely the same time that English armies were endeavoring to rivet the chains of tyranny upon *our* fathers at home. J. R. I

EDUCATIONAL INTELLIGENCE.

THE NATIONAL EDUCATIONAL CONVENTIONS, whose meeti are to be held in Cleveland, Ohio, the 15th to 19th of Aug as announced a month ago, have been perfecting their arrangeme through the untiring efforts of their officers. Mr. D. B. HAG President of the NATIONAL TEACHERS' ASSOCIATION, informs us t "Excursion tickets, good for passage from New York to Clevel and back to New York, may be had for \$20 each. These tickets be 'valid for passage Westward via Atlantic and Great Western R way, and for return via Lake Shore Railway to Buffalo, thence Erie Railway to New York.' The tickets Westward will be m good for as early a date as any of the teachers desire to start, and return till September 15th." The teachers may also have tickets their families and escorts at same rate. Application for tick should be made to Hon. Henry Kiddle, Superintendent of New Y City Schools, 146 Grand street, New York. Through Mr. Kidd kind agency this arrangement has been effected.

THE GERMAN NATIONAL TEACHERS' ASSOCIATION is to hold First Annual Meeting in Louisville, Kentucky, August 1st to Nearly three hundred delegates are already announced. We hope receive an interesting report of the proceedings of this meeting.

THE NEW YORK STATE ASSOCIATION OF SCHOOL COMMISSIONERS CITY SUPERINTENDENTS has a good programme for Monday, 25th, at Syracuse. The Officers are J. B. Wells, President; E. M. 1, Vice-President; A. McMillan, Treasurer; D. E. Whitmore, Secretary; and Newton W. Edson, Recording Secretary. Papers pronounced by D. D. Metcalf, M. L. Laughlin, E. A. Sheldon, John Armstrong, J. W. Barker, J. H. Hoose, E. Osborn. The meetings of this Association are generally worth attending.

THE NEW YORK STATE TEACHERS' ASSOCIATION, July 26th, at Syracuse, will doubtless have an interesting session. Mr. Barr, the President, has been indefatigable in his preparations. Arrangements have been made with different lines of Railroads, "by which persons pass over such routes to attend the Association, will be furnished with tickets *free*, and the hotels will entertain teachers at reduced rates." We have not received a programme of the exercises, but expect to be able to give a good report of the meeting in our next.

THE AMERICAN INSTITUTE OF INSTRUCTION, Worcester, Mass., 27th, 28th and 29th, has a good programme, and cannot fail to have an excellent session. We expect a good report of the same.

NEW JERSEY.—The Educational Institution which is to bear the name of its founder, the late EDWIN A. STEVENS, of HOBOKEN, New Jersey, is making rapid progress towards completion. The endowment fund is 500,000 dollars. The buildings now in course of erection on Third St., Hoboken, are to cost 150,000 dollars. The school will be technological only. The Trustees have already appointed PROFESSOR HENRY MORTON to the Presidency. A peculiar feature is, that proficiency in the German and French languages will be required for admission into the Institution. The study of these languages will be continued in the course, so as to enable the students to read German and French texts with vernacular facility.

THE MARTHA INSTITUTE, founded some time ago by Rev. Mr. L. Wall, has been incorporated in the STEVENS' INSTITUTE, as its Preparatory Department. Rev. Mr. Wall has been appointed its Director. The STEVENS INSTITUTE is to open in September, 1871.

Now is it, that all around New York the importance of technological education is duly appreciated, while we seem to remain indifferent to it? Must we send our sons to New Jersey to gain that education for life, without which American destiny cannot be accomplished?

SOUTH CAROLINA.—A State Convention of Teachers was held at Columbia, on the 19th and 20th of May, 1870. A permanent association was formed, under the title of "The Educational Institute of South Carolina," having for its object the advancement of all the branches of education, both general and special. The Institute, as will be seen from its constitution, is organized on a liberal basis. The regulations relative to membership is as follows:

ARTICLE 2. Any person who is, or has been, identified with the cause of education, may become a member of this Institution by a vote of four-fifths of the members present at any regular meeting, by the payment of an initiation fee of one dollar, and by signing the constitution.

Many subjects of general interest were proposed and discussed by the members, and the earnestness evinced by those present affords ground to hope for abundant and valuable results from this movement. The provisions of the constitution adopted embrace a variety of important topics connected with the conduct of schools of every grade, private and public, classical, technical and scientific; the literature, history and laws of schools; methods of instruction; the publication of an educational journal; and indeed whatever pertains to the interests of teachers and the people. Provision was made for the delivery of an annual address before the Institute, and for the preparation of essays to be submitted at next meeting, on the special subjects of Normal schools, best methods of educating the two races in the State so as to secure the best interests of both, best method of teaching the ancient languages, and phonography as a branch of study.

The next meeting of the Institute will be held at a time to be hereafter designated by the Executive Committee. The following are the officers elected and installed:

President—Hugh S. Thompson, of Columbia. *1st Vice-President*—G. A. Woodward, of Winnsboro. *2d Vice-President*—J. B. Patrick, of Greenville. *3d Vice-President*—A. P. Pifer, of Newberry. *4th Vice-President*—D. H. Townsend, of Union. *Corresponding Secretary*—B. F. Miller, of Greenville. *Recording Secretary and Treasurer*—M. M. Farrow, of Winnsboro.

MISCELLANEA.

IN a large Teachers' Institute, in one of our largest States, the question was asked, "In what direction is Greenland from the North Pole?" The written answer, from a majority of the teachers, was, "South East!"

IN a recent examination in Iowa, a "leading teacher" was asked to analyze and parse the following sentence: "See the blind beggar dance." He said, "*See* is an adjective and qualifies blind; *the* is a definite article and shows the relation between *blind* and *see*; *blind beggar* is an adverb and qualifies dance. It is a simple imperative sentence of which *see the blind beggar* is the logical subject."

In the same State the following questions and answers were recently given, in a written examination: "What method of reading

figures do we use?" "Roman!" "What is cancellation?" "The art of shortening arithmetic!" "Give a reason for locating the tropics $23\frac{1}{2}^{\circ}$ from the Equator?" "The revolution of the sun around the earth!" Evidently Iowa needs several more Normal Schools.

PROFESSOR JEROME ALLEN has recently closed a very successful series of Institutes in Iowa—the last of which was a Normal Institute of six weeks, at Iowa Falls. During the autumn he is engaged to hold Institutes in New York, Connecticut and Iowa.

AN Ohio member of the school board delivered the following speech at a recent sitting of the board: "I rise for to—that is, to make motion, which is as follows: *Resolved*: That there are no need to build such costive school houses as some of this ere board is proposin to 'rect. No, Mr. Cheermean, I'm 'posed to spendin money for more housen. The old ones are pretty good yit, and for to go to build a pretty house which will cost \$10,000, or more yet, its all wasted."

IN Constantinople, a Normal School for Mussulman girls has just been opened, under the direction of an old member of the learned body of Ulema. Instruction will be given in Turkish, Arabic and Persian, "useful knowledge," needle-work, and the sewing-machine, and by-and-by in the French language and the piano. Forty pupils are already enrolled.

AN interesting discovery is reported from the Mississippi River, near the mouth of the Arkansas. It is no less than the finding of an ancient vessel buried under an island, and supposed to be that in which De Soto's body was 300 years ago sunk at midnight in the midst of the river.

IT is said that a German savant, engaged in exploring the plain of Troy, while making some excavations near the village of Cyplax, suddenly came on the ruins of a cyclopean wall about eight feet thick. The works were actively pushed on, and from what has already been brought to light, it is thought that the remains of the famous palace of Priam have been discovered. The part of the ruins already uncovered exactly tallies with the description of the palace given by Homer in the "Illiad."

THE adherents of the doctrine of "natural creation" claim to have solved the problem of the "origin of life," the substance out of which, according to their theory, all life has emanated, they call Protoplasm. It is described as living albumen, and is said to be the only contents of the cells of all organized beings. There is a microscopic animal which consists of nothing but of this substance. This being is without any organization, and its movements and whole life is merely "chemical," its motion being produced by nothing but the influence of the oxygen in the air, which continually enters into combination with the different elementary constituents of the mass, causing thus

expansion and contraction. The assimilation of food is entirely mechanical. If it meets any substance smaller than itself, it surrounds it mechanically, and chemically dissolves and assimilates it. Its propagation is simply a division into two parts. It cannot be denied that this is the lowest form of life hitherto observed. But how can this existence solve the problem of life, since it is itself a "given existence?" Produce first, protoplasm in your laboratories, gentlemen of the Darwinian persuasion, and then say that you can dispense with a Creator. Your expedient merely converts the Creator of man into a creator of "protoplasm," i. e., still a creator of life.

One of the most brilliant of academic teachers was HENRY GUSTAVUS MAGNUS, Professor of Physics and Technology in the University of Berlin, who died April 4th, 1870. He has made a number of important discoveries in chemistry, but his great quality was that of a teacher, and in this respect he was conspicuous even in Berlin. His lecture room was always filled to its utmost capacity. He has, perhaps, made more converts to the study of natural science than any other professor in the world. His latest work is on Emission, Absorption and Reflexion of Radiating Heat, just published in Berlin.

GESSING says: Let us suppose God the Almighty holding in His right hand all the Truth of the world, and His left nothing but the irresistible impulse for truth, ever awake and powerful, but trammelled with the condition of perpetual error. Let us further suppose the Almighty had permitted me to choose between these, I should humbly seize His left, saying: O my Father, this for me—pure Truth is for Thee alone!

CURRENT PUBLICATIONS.

CALKINS'S NEW PRIMARY OBJECT LESSONS,¹ just from the press, embody results of the author's experience during the past eight years as Superintendent of Primary Schools in the City of New York, and as Lecturer on Principles and Methods of Teaching in the Saturday Normal School. The author says in his preface:

"It is well known that the majority of those who engage in School teaching commence its duties with little or no professional training. Their preparation for this work usually consists in learning the several branches which are generally taught in school, without attention to the methods of instruction, or to exercises specially adapted to train the mental powers of children; consequently these teachers enter upon their duties with but little knowledge of the philosophy or the principles which should guide them in their work. To meet this condition in the department of primary education, and lead teachers to proper steps toward success in their work, is the design of this book."

¹ By N. A. CALKINS. New York: Harper & Brothers. 12mo., cloth, 442 pages, price \$2.

A MONTH AGO we had occasion to notice a "History of the State of New York," prepared by Mr. S. S. Randall, and to take exception to its manner and matter. The work before us² presents a marked contrast to that production. We could not ask a better illustration of what a history should be. It is true that the former work was intended to serve as a text-book in the Common Schools, and that the one now under review is offered for general circulation, and therefore appeals to a much wider set of readers. But the need is not essentially different in the two cases. History is in great measure the chronicle of consecutive events, and those events gain their significance from the social development which they indicate, and specific stages in that development may be of the most momentous importance, and yet be unaccompanied by any serious outward convulsion.

We have examined Mommsen's History with the greatest interest. It is not a book to be lightly read and lightly thrown aside, like a novel, yet it is as entertaining as fiction. For as the novel is an attempt to depict the social life of to-day, and to show individual action as affected by the forces and ideas now current, so this affords us a glimpse into the private life of those who controlled the destinies of the mistress of the world, and an opportunity to watch the growth and fluctuation of those influences which have contributed so largely to mould the civilization of all following ages.

In his theories our author agrees in the main with Niebuhr, but he makes scant reference to authorities. He is content to give the result of his researches in a smoothly-flowing narrative. Without entering into the history of other nations further than is necessary to explain the relation subsisting between the various races which occupied the shores of the Mediterranean Sea, he proceeds to inquire into the character and probable origin of the tribes which peopled the peninsula to the west of the Adriatic. On this portion of the subject early history throws no light, and legend emits but flickering and confusing gleams. The most reliable data appear in linguistic affinities, and language is used like a candle to light the way among scattered barbarians down to times which have left a record more easily decipherable.

The probable intimate relationship between the Greek and Latin races having been shown, a comparison is instituted between their characteristic ideas, and the singular fact is pointed out, that a common theory should at so early a period have produced such diverse offspring as the Latin surrender of personal freedom to the interest of the State, and Greek individuality at the ultimate expense of the common weal. The Greek unit was the man—the Latin unit the family. In Italy the individual was of little importance, but the life of the family must be preserved; consequently, adoption was recognized as an expedient for its perpetuation, under legal sanctions.

We wish it were practicable to follow through the inviting field here opened to us, and that space would allow the transcription of some of these sober but vivid passages. As, in reading Henri Paine, we smell the odors of Naples, and drink in the glow of its sunsets, so we feel here the reality of the pictures presented to us, the assurance that these Latins and Samnites and Etruscans, these patricians and plebeians, though so different, were yet the actual progenitors of the Romans of to-day. We watch the consolidation of tribes into a nation, the extension of national power over outlying communities, the increase of agriculture and traffic, the development of religious ideas, of law, and of art.

² "The History of Rome." By THEODORE MOMMSEN. Translated by the Rev. William P. Dickson, D.D. New Edition, in 4 vols. Vol. 1, 2, 3. New York: C. Scribner & Co. 1869-70.

The first volume brings us down to the period of a united Italy, about 280 years B.C. The stories relating to this epoch, which are often employed as records of fact, are here mostly used as illustrations of certain conditions rather than as historical statements. The second volume terminates with the fall of Carthage, and embraces a forcible sketch of the moral degeneracy which had already begun. This is made more manifest in the third volume, which includes the revolutionary period, and ends with the death of Sulla, 78 years B.C. The literature of the day is also reviewed, and its relation to the state of public and private morals carefully indicated.

Messrs. Scribner & Co. are doing the American public a real service by republishing this work, though it seems most unfortunate that they should have selected such thin paper for the second volume, thus destroying the uniformity of what otherwise would have been a very handsome set.

THE AMERICAN COLLEGES AND THE AMERICAN PUBLIC. By NOAH PORTER, D.D., Professor in Yale College. 285 pages. We commend the book to the perusal of all sincere educators. New Haven, Connecticut: Charles C. Chatfield & Co.

FREE RUSSIA. By WILLIAM HEPWORTH DIXON, author of "Free America," etc. 359 pages. New York: Harper & Brothers.

PUT YOURSELF IN HIS PLACE. By CHARLES READE, author of "Hard Cash," etc. With illustrations. 319 pages. New York: Harper & Brothers.

THE WRITINGS OF ANNE ISABELLA THACKERAY. With illustrations. New York: Harper & Brothers.

THE VICAR OF BULLHAMPTON: a Novel. By ANTHONY TROLLOPE. With illustrations. 300 pages. New York: Harper & Brothers.

THE JUNO STORIES. By JACOB ABBOTT. Vol. I, "Juno and Georgie," 312 pages. Vol. II, "Mary Osborne," 301 pages. These are very excellent stories for children, and handsomely published. New York: Dodd & Mead.

THE MEN WHO ADVERTISE: an Account of Successful Advertisers, together with Hints on Advertising. A handsome volume of 872 pages—in itself a monument of business enterprise. If its publishers do not reap as rich reward as any of the successful business men whom they sketch, we shall be mistaken. New York: Nelson Chesman, Publisher for George P. Rowell & Co., Newspaper Advertising Agents, 40 Park Row.

SOME interesting archæological discoveries have just been made at Sakkara, in the immediate neighborhood of the famous Serapium or Bullpits in Egypt. In removing some sand heaps the workmen came upon an antique statue, which led to further investigation, and an avenue of about a dozen similar relics was discovered. These works of art, which consist of two figures seated respectively on lions, and four others on horseback, the remainder on foot, are presumed to be those to which Strabo alludes.

THE weight of the Great Pyramid, according to Sir John Herschel's calculations, is 12,760,000,000 pounds. According to Perring, the present quantity of masonry is 6,316,000 tons, or 82,110,000 cubic feet.

AMERICAN EDUCATIONAL MONTHLY.

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ENGLISH LITERATURE.

PART ONE.

"Literature is the immortality of speech. It embalms for all ages the departed kings of learning, and watches over their repose in the eternal pyramids of Fame."

ONE hundred and ten years ago the Leviathan of Literature, Samuel Johnson, wrote: "The riches of the English language are much greater than they are commonly supposed," and the eleven decades that have since elapsed, have emphasized his words by the thousands of volumes, which writers in Old and New England have added to the stores he contemplated.

There has been much thought evolved from the English mind, and during the past twelve centuries, this has been recorded in the books of our language. Come with me into a great library. The volumes are arranged in accordance with the topics of which they treat. Over one alcove we read *Law*; over another *Medicine*; over another *Science*; and over another *Philosophy*. Does the literature of which we are treating include all of these volumes? We are told that it does not.

True, we speak, and very properly, of the literature of the law, of theology, of science; but when we speak of litera-

ture in general, we refer to something that is universal, catholic, and which appeals to man as man simply. We must, therefore, exclude from our idea of literature all which relates to the positive sciences. Such books appeal not to man as man, but to students in the pursuit of knowledge of a special sort. De Quincey has well said that there is a literature of knowledge and a literature of power. The former fills the mind, the latter strengthens it. It is the latter which we propose to investigate.

The literature of power is neglected in our schools. Our plan—it was the plan of the Dark Ages also—is to rely upon the authors of Greece and Rome as the means to the development of mental strength. Let us not join in the hue and cry injudiciously raised against the classics as school studies. They must not be excluded. Our motto should not be “No Latin and Greek,” but rather “More English.” A thorough study of our native speech in its wonderful growth, fascinating literature, and composite derivation, affords a stimulating drill, and leads to comprehensive thought as well as to great delicacy of taste. “It is common,” says Dr. Johnson again, “to overlook what is near, by keeping the eye fixed upon something remote,” and this is what we are doing when we neglect our own literature to cultivate acquaintance with that of another land. Shall we not encourage our sons and daughters to wander over the charming fields of poetry, guided by our Chaucer, Milton, Shakspeare, Watts and Tennyson? Is it a small privilege for them to search out the differing beauties of the prose of Bacon, Herbert, Addison, Johnson, Froude, Motley, Hawthorne and Thackeray? Aye, will not loving communion with the masters of thought and expression ennoble our children, strengthen their minds, and beget in them a praiseworthy ambition to develop their own resources?

Suppose we had in one room a series of thirteen alcoves, upon the shelves of which were chronologically arranged specimens of the books written in England and America during each of the centuries since the year six hundred. The number of volumes need not be very large to give us a fair view of the whole of our best writers. Let us now, in imagination, look through this collection.

As we open the few antique volumes in the alcoves of the earliest dates, we find that we can scarcely understand them. The language, the letters, the spelling and the style are all strange to us. Further examination reveals the fact that our literature, which has now attained magnificent proportions, has passed through many stages of growth, as well in regard to the subjects treated as to the style and spirit of its authors. To trace this growth and to enquire for its causes will be our interesting study.

Looking over one alcove after another, we are attracted by that one covering the period between fifteen and sixteen hundred, because the names of the authors and the titles of the books are familiar and intelligible to us. Not far apart we find the works of Shakspeare, Bacon, Edmund Spenser, Sir Philip Sidney, Sir Walter Raleigh, and Ben. Jonson, while near them is the Bible of King James, in the very words so familiar to-day. Standing before this alcove, we notice that the language of the books on one side is less and less like what we now call English, while those on the other hand are all written in the mature language of to-day, with but minor variations.

We are prepared to say that at some data between fifteen and sixteen hundred our language and literature were changed, or at least that on one side they were in a state of immaturity, and on the other in a state of maturity. The year 1558 is a convenient one to use for the division, for it marks the opening of the brilliant reign of England's greatest queen.

We have, then, two grand divisions of our subject—Immaturity and Maturity. As the blooming peach in our orchard did not arrive at the perfection that so charms the eye and pleases the taste in a moment, but was ripened by the continuous rays of many sunny days, so our literature did not drop one form and assume another at once. Maturity in both cases was the result of growth so gradual as only to be appreciated in a comprehensive view of the process.

This view we shall get by examining the books in each of the divisions we have now made. Let us take the period of *Immaturity*. The first division we shall very naturally call the period of *Original English*. Writers have sometimes

applied the term Anglo-Saxon to the language of this period, using a modern term by which it was intended to indicate the composite nature of the language. The term Anglo-Saxon was, however, not used at the period, and it has been shown by Max Müller and others of the highest authority that the language was English, and was so called by those who spoke it. The period of Original English may be said to end about the year 1150.

A new influence was exerted upon our language and literature after the conquest by the Normans. The introduction of a new social political and linguistic power resulted in a conflict between the English—which is a Gothic language—and the French—which is of Romanic origin. Thus many foreign words were introduced, the form of Original English was broken up, and we shall find it convenient to speak of the century between 1150 and 1250 as the period of *Broken English*.

The natural result of this state of affairs was that learned men began to look upon English as an unstable language, and those who wrote used Latin, which was understood all over Europe. Thus for a century, our language, though still used by the people, was dead so far as literature is concerned. It has been called the period of stagnation, but it was the stagnation that we notice in the seed before it appears above the ground. During the time England was severed from Normandy, the two races on British soil had become somewhat amalgamated, the universities of Oxford and Cambridge were chartered by Henry III., and the Magna Charta was signed by King John. Let us write *Dead English* over the period from 1250 to 1350.

Even the superficial student of English history will remember the revived national spirit that was so marked in the earlier years of the reign of Edward III., when the yeomanry were asserting their claims to liberty, and were using solid arguments upon the field of battle. The pages of history are marked by the names of Cressy and Poictiers which bring up the deeds of Edward, the Black Prince, and their yeoman soldiery. Literature was revived with patriotism, and among the writers are the poets Chaucer and Spenser, the translators of the Bible, John Wiclif and

am Tindale, and the author of the Vision concerning Plowman. This influence is apparent from 1350 to which we may call the period of *Reviving English*.

and now we have reached the beginning of the period of *revival*. The capture of Constantinople by the Turks in 1453 caused the expulsion of many learned men from that city. Leo X. when he became Pope of Rome, and before that time had invited these men to Italy, where they established schools, and exerted an influence over all Europe. This period is known as that of the Revival of Letters, and we may call it, so far as our literature is concerned, the period of the *Italian Influence*. It was a time of progress in every department of human activity, a fact which will be apparent both to the student of the history and literature of the period.

There was all this time a strife in England upon religious questions. The Puritans had arisen and were earnestly inculcating their views. Their religious and political power increased until in 1649 they beheaded Charles I. in front of his own palace of Whitehall. Then for eleven years Oliver Cromwell and his partisans ruled the country. This strife as its result had a deep and lasting influence upon literature. On our book-shelves we find the works of Fuller, Henry Taylor, John Bunyan, Richard Baxter, and of many others whose names and books are still green in our memory. We must write in distinct characters over this division, the period of the *Puritan Influence*. This period extends from 1649 to 1660, when the Puritan influence was felt in literature both before and after those dates.

In the latter year Charles II., who had been luxuriating in the gay court of Louis XIV., was restored to the throne of his ancestors, and his bad example brought many dissensions into England. There was a sudden and marked change in fashions, morals and literature. The Puritans and their sober black dress were ridiculed. The theatres, which they had closed, were opened. Lady Castelmaine, Anne Stewart and Nell Gwynne presented examples of vicious sensuality, which the minor members of court and society were not slow to imitate. Our literature was marked by the debasing writings of the comic dramatists whom

Macaulay has held up to deserved obloquy, and much of the other literature was also sensualized. Still there was purity in the nation. When Charles II. landed on his native soil he was presented with a costly copy of the Bible, and, in deference to the better sentiments of his subjects, the royal hypocrite kissed the sacred volume, declaring that he loved it above every thing else! Could he have paid a greater compliment to the true nature of the honest English heart?

From 1660 to 1700, however, example proved stronger than precept, and our literature, instead of being soberly manly, deep, and earnest, became frivolous, effeminate, superficial, and trifling.

The next change showed a state of affairs entirely new. The essays of Addison and his associates, addressed to the higher classes, appear to have begotten the newspaper addressed to the people. The son of a non-conformist butcher, who was, of course, shut out from the public schools and universities, obtained an insight of life and nature that schools do not furnish, and, being of the people, wrote for the people with boldness and acceptance. From the days of Daniel Defoe to the present time, the people have not wanted champions, nor have they been slow to assert their rights, and their influence is manifest in the publications from 1700 to the present time. Popular taste has not always made the same demands upon authors, and we shall be interested to trace the changes in the standard of literary excellence during this, which we may call the period of the *People's Influence*.

The years between 1700 and 1745 were those of the literary life of Alexander Pope, who attained a somewhat exceptional popularity. He aimed at elegance and finish in composition as good in themselves, and without being a truly great man or writer, his example made a mark upon the literature of the day. We may, therefore, speak of this as the *Age of Pope*.

The central light in literary circles in England from 1745 to 1800, was Samuel Johnson. He wrote with earnestness and force, and in a peculiar style, all of which characteristics he impressed upon much of the literature of the time. Let us call this the *Age of Johnson*.

The first generation of the present century saw a galaxy of poetical writers arise and flourish. They were influenced to some extent by the new romantic school of Germany, which aimed to overthrow the artificial and pedantic style, which effort was of beneficial influence. We shall call this the *Age of Poetical Romance*.

The year 1830 saw the downfall of Charles X. in France, and the death of the last of the Georges in England, and, during the years that have passed since, the advance of the world in freedom and material prosperity has been greater than in any former period of the same duration. This material progress has given tone to literature. We cannot now continue the discussion, and must be satisfied with the general remark that no department of letters has progressed so rapidly as that of *Prose Romance*, to which the original impetus was given by Sir Walter Scott in his ever famous *Waverly Novels*.

Let us now look over our alcoves, and see how we have systematized the books on our shelves. The divisions are few and simple.

First, there are two grand periods of *Immaturity* and *Maturity*, corresponding with the stages of growth in the realm of Nature, which are marked by the year of Queen Elizabeth's accession in 1558.

In the first of these we found four stages of growth.

- I. *Original English*, previous to 1150.
- II. *Broken English*, 1150—1250.
- III. *Dead English*, 1250—1350.
- IV. *Reviving English*, 1350—1558.

In the second grand division we also marked four stages of growth, named from the influences by which they were caused.

- I. *The Italian Influence*, 1558—1649.
- II. *The Puritan Influence*, 1649—1660.
- III. *The French Influence*, 1660—1700.
- IV. *The People's Influence*, 1700—1870.

The last of these sub-divisions we found convenient to consider under its four aspects.

- I. *The Age of Pope*, 1700—1745.

II. *The Age of Johnson*, 1745—1800.

III. *The Age of Poetical Romance*, 1800—1830.

IV. *The Age of Prose Romance*, 1830—1870.

These divisions are natural, and, being in groups of four, easily remembered. Let us take them up one after another and examine them more minutely. The schedule we have delineated shall constitute the *prenotion* which Lord Bacon recommends every one to establish at the outset of an investigation. "Without such an antecedent general apprehension," says Dr. Shedd in his *Philosophy of History*, "the mind is at a loss where to begin, and which way to proceed. The true idea of any object, is a species of preparatory knowledge which throws light over the whole field of inquiry, and introduces an orderly method into the whole course of examination. It is the clue which leads through the labyrinth; the key to the problem to be solved."

Let us keep our key in mind, and the labyrinth of literature will be plain and easily comprehended.

ARTHUR GILMAN —

UNIVERSITY EDUCATION IN GERMANY.

PART FOUR.

SO far we have regarded the German University simply as an admirable machine for instruction, it is something more than this. In making real merit the condition of promotion, it has attained a higher aim—it has founded the scientific glory of the country. Every *privat-docent* knows that his only chance of success is to make himself known by deeper investigation, and better work than his rivals can perform. He knows too that his personal standing is in no danger from intrigue or disgrace, from the interference of officials, or the judgment of a remote superior who is to be won by flattery. His only judges will be his peers, the professors of other Faculties, under the protection of public opinion. The scientific reviews proclaim the results of his studies, and the students spread the renown of his instru-

1. His future is sure—he will become titular or supplementary professor. No power, no clique can prevent him. There is no case on record of a *privat-docent* of merit who remained in the second rank. The secret of this is in the German freedom from centralization which fills us with astonishment. The *privat-docent* of a great university leaves without fear; he has no need of keeping friends or a powerful protector there in order to be assured of his recall some future day. He is certain that he will be summoned from his exile at one of the less-known universities—as Giessen, Rostock, or Marburg—if he prove himself worthy. And in the profound calm of these small towns—inhabited, as Goethe said, only by professors, philologists, students, and cattle—he works at his ease; he progresses and makes himself known. Nothing disturbs him; scarcely do rumors of the life of the world reach him. We have heard one of the celebrated anatomists of Europe (Bischoff) complain of the excessive distractions of Munich. Munich! almost as animated as Versailles! If the Germans have styled it the Northern Athens, it is certainly not on account of the bustle of its public square. Herr Bischoff remained for his life at Erlangen, where he had made his interesting researches in embryology, and formed an anatomical collection. He told us of the excitement created in the university and the town by the arrival of a dead crocodile which had been sent thither from the *Jardin des Plantes* at Paris. His assistants and pupils were kept at work with almost night and day, in order that nothing of the precious creature might be lost; and they amassed a great number of preparations which now fill the anatomical galleries. Such is the life, such are the momentous incidents, in these insignificant university towns, which have been continually adorned by the most illustrious names of Germany. After studying and lecturing all day, the young professors meet in the evening, drink a glass of beer together, exchange scientific information, discuss, affirm their doctrines, and excite from this mutual contact greater ardor for the next day's work. Hence the enormous quantity of original books, memoirs, investigations that are every day contributed to the

progress of knowledge at all points in the Germanic territory. Among all the nations of Europe, Germany is by far the most industrious in the pursuit of truth. We do not wish to be understood as depreciating French science. The two countries advance on different paths. The German works are all detail, erudition, investigation; they are the result of patience and solid information, but they often lack the spark which makes a science spring from a single book. On the other side of the Rhine there are no great treatises—such as the *Mécanique Céleste* of Laplace, or Cuvier's *Recherches sur les ossements fossiles*, or Bichat's *Anatomie générale*. Germany registers every day an immense number of facts which have been observed, of points of knowledge which have been acquired, but it is perhaps deficient in the art of interpreting, uniting, and separating them according to the process of a strict method. At the present time our neighbors have as many systems as they had in the palmiest days of metaphysics. The philosophical cycle is not yet closed—the purely scientific era is not yet open. In a word, Germany is more under the weight of the past than France; the middle ages yet exist there in a thousand forms—even at the university. Let us open the door, we enter the hall of honor, the *aula*. The assembled Faculty is presiding at the ceremony of conferring the degree of doctor of medicine. The examinations are over. Before the candidate receives his diploma, sealed with the great seal of the Faculty, and signed by the dean, the usual oath is administered. The university judge reads the formula, the candidate repeats it after him, his hand in that of the judge. Now this oath begins thus: "I do solemnly swear to practise medicine, not for myself, but for the greater glory of God," and ends it begins: "I finally swear to give all my attention to sanctifying religion by the profession which I shall practice. May God and His Holy Gospel aid me." If the candidate be a Jew, the last invocation is somewhat modified. Such is the ceremony of making doctors in the land of Fichte, Schelling, and Hegel. This oath, which may clash with the philosophical opinions of the candidate, is pronounced in Latin, and here we find another Gothic peculiarity in the German system, namely, that the Latin plays a pedantic role to

of which we since the revolution have hardly a trace left. The academic discourses are in Latin, also most of the theses, and these last always contain an abridged life of the young doctor in Latin. The bulky pamphlet, which announces at the beginning of each semester the hours and subjects of the lectures, is all in Latin. The amphitheatre, the desk elevated above the benches, recall the old pedagogic tradition. The words fall from the master to the pupil, instead of being addressed to him, face to face, as is the case in our halls.

However, German science is freeing itself gradually from all this superannuated apparatus, and instruction is undergoing a radical transformation. With its marvellous pliability, it is entering into union with modern tendencies. The lecture-rooms get renewed as well as the doctrines announced there, laboratories rise from the earth, the apparatus becomes complete, and the sciences of life—most closely connected with the religious and social problems of the time—lead the advance in this great movement. In Berlin the Anatomical Museum is lodged in a building of huge but elegant proportions, without extravagance, or ill-placed pretentious ornaments; and if the antique paintings of the halls occasionally recall the old German spirit, the general arrangement of the building is planned according to the latest scientific views. It contains collections, cabinets of instruments, and rooms for investigation. The lecture-room, planned like our own, is contrived with careful particularity; the table, covered with the objects of demonstration, extends into the vast space reserved for the professor, and can be turned in any direction. The rooms for the lectures on chemistry and physics are also especially arranged according to the necessities of those subjects.

The generosity which has been lavished at Berlin on the practical study of anatomy is rivalled at Bonn. The Prussian Government has expended about 800,000 thalers for the laboratories of these two cities, the kingdom of Hanover about 100,000 thalers for that of Göttingen, the little Duchy of Baden 100,000 thalers for the laboratory at Heidelberg—the finest and now the most celebrated of all Germany. It is called the Palace of Nature (*Natur-Pallast*). It is the

domain of Helmholtz. He, after having studied at Berlin, became, while still quite young, professor at the university of Königsberg. The importance of the works which he published there secured his call to Bonn, where he taught anatomy and physiology. The Prussian Government then committed the error of not retaining a man of such value, even at some cost. The Government of Baden, with more wisdom, made him an offer which succeeded in establishing him at Heidelberg. This was in 1857. The new professor had full power to arrange his laboratory to suit himself, and to create an establishment worthy of the great discoveries he already foresaw. The *Natur-Pallast* has special chemical, physical, and physiological laboratories, in which nothing is lacking that is necessary for the study of the sciences of life. The *Natur-Pallast* is one of the glories of this happy little country of Baden. The Parliament votes every year the sum necessary for its support, and when the professors ask it they give additional sums for important acquisitions. Heidelberg has also Bunsen; Berlin has deprived it of Kirchhoff. At Heidelberg were begun the great investigations in spectrum analysis, which are revealing to us the composition of the stars. And so this university, which was celebrated a few years ago for the study of law, is now the centre of the physical and physiological science of Europe. One German State maintains the *Natur-Pallast* from its treasury, keeps Helmholtz and Bunsen, attracts all the students of Germany and all the savants of Europe to one of its universities, and the State which does all this is no larger than three of our departments.

The eighteenth century gave French science the preponderance in Europe. In 1795, Pallas, a German, printed at St. Petersburg his *Tableau physique et topographique de la Tauride* in French. Until 1804 the Memoirs of the Academy of Berlin were issued in French; French had become the language of learning throughout the Continent. All this advance has been lost. The wars of the Empire, crowned by the awakening of German nationality, were the signal of a violent reaction which extended to literature and science. The universities, after having raised the theory of education to a lofty height, are now founding its practice on the

adest basis. The German mind has been renewed by it; it quits its secular swaddling-clothes, and enters into maturity of the modern spirit with all the advantage of unrivalled system of education. Therefore the influence Germany in science goes on increasing in Europe. A month ago, a *privat-docent* of Berlin, appointed professor at the capital of Holland, began his course in German. The reason which he gave to his astonished hearers was, German was henceforth the universal language of science. Even at Paris a sort of unmanly discouragement has fallen upon us; the biological sciences themselves have shown a tendency to become Germanized even in the land of Buffon, Bichat, and Geoffroy Saint-Hilaire. This is a serious matter, and well demands the attention of those who are anxious to see France resume a position in science that shall be worthy of her. Patriotism must seek some means of relighting at any cost the torch of truth which France, long since gone by, held higher than all the nations of the world.

GEORGE POUCHET.

ELOCUTION.

THE money which sustains our public schools is not a gift, but money well invested. The State expects to give it again, with interest. There are only two ways in which this debt can be returned, viz., by the hands or by the feet of the recipients. Technical education may instruct the hands, but intellectual education is requisite in order to quicken the lips to perform this duty. Without Elocution, intellectual education is incomplete. A well-stored mind, without a knowledge of that art, may be likened to a reservoir without a main to conduct its waters to the city. True, there are other artificial channels, but history proves that these are not so effective to convey instruction to mankind as the one formed by nature. The Koran was "written" by a prophet—but the Gospel was "preached" by Jesus Christ. Is it not singular then, that, with us, the art of speaking has been so sadly neglected? Young children, before they

enter our public schools, are, in nine cases out of ten, naturally eloquent; they seldom speak without action, and their actions are graceful because they are natural; but, when they enter our schools, the first thing they generally find out is, that they have each two arms too many. Four, six, or eight years pass,—no practise, no improvement; the neglected talent is forgotten, it has returned to the Giver; in all probability, in the majority of instances, never to be reclaimed.

Doubtless the chief reason why Elocution has been neglected is, that it cannot be taught collectively. It is an art which must be cultivated rather than imparted. It deals with the mind and with the feelings, and these differ in different individuals. Machine Elocution classes are therefore, and consequently must be—failures. In teaching it, general laws are necessary, but minute particularizations are only needed by advanced scholars. Instruction should be given to junior classes by example rather than precept. The highest flights of oratory cannot be described by writing, and are not to be attained methodically by rigid obedience to rules. No sight is more painful to an educator than to hear and see a child deliver a recitation with measurably correct tones and actions—but without feeling. The first thing a good actor does, when appointed on a new part, is to study the character he is to represent. So likewise, a child must comprehend a selection before it can deliver the same with success. Some youths have a foolish idea that the practise of Elocution is unnecessary, that when the time comes for them to speak in public, they will catch the ability to do so, as babies take the measles. This is a grave error. No orator ever attained eminence without much study and practise. To some, it is true, the requisite labor is not a task but a delight. Of course, as age advances, this necessary effort becomes more onerous. How important, then, to commence early in youth! It has been stated that almost all very young children are natural orators, and, this being so—does it not justify us in demanding that this talent in them shall be carefully cultivated from their first admission into our primaries?

In the practise of Elocution, children are learning more,

ar more, than how to speak well, though that alone is a very great desideratum. They are improving their memories and expanding their minds. There is a difference between reading and speaking. It is easy to read Milton's Morning prayer, but he who recites it well must stand in paradise. His development of the imagination is the true corrective of that materialism of the age which fills our cities with crimes. It has of late been asserted by influential presses, that the pupils of our public schools do not even read well, when the production of easy and able speakers ought, with them, to be the rule rather than the exception. If we could improve this state of things, the reformation must commence in our Normal Schools. It is more important that our teachers should be model readers and speakers than that they should be advanced mathematicians. With the example of Demosthenes before us, as regards the acquisition of a knowledge of the art of Elocution, the word "impossible" is not in the dictionary. Let us hope that the time will soon arrive, when, at our school exhibitions, the public will not rest content with listening to the declamations of pupils only, but will expect to be, and will be gratified with hearing so from the artists who take charge of the Oratorical departments. When this is the case, we shall expect to see great improvement, not only in reading, but in all that general knowledge to which it forms the entrance.

R. W. HUME.

WHAT IS A SENTENCE?

IN reply to this inquiry, a writer, signing himself "B." in the AMERICAN EDUCATIONAL MONTHLY for July, 1885, "Prof. Andrews, in his 'First Latin Book,' gives the best, most concise, and beautiful definition that I know in the English language. It is [that a sentence is] 'a thought expressed in words.' Thought is the primary element—words, a secondary."

Neither "B.'s" knowledge of "neat and beautiful" English definitions is quite limited, or else he has given very little

thought to this definition in particular; for, however correct it may be, it is far from being correct, and consequently scarcely be called with propriety either neat or beautiful.

The object of speech is unquestionably to give expression to thought; hence sentences should, and generally embody one or more thoughts. But to say that thought is "the primary element" of a sentence considered in a grammatical point of view, is to speak without due consideration. Thought is primary to a sentence only as a bird is primary to a bird-cage. That is, as a cage is made to hold a bird, a sentence is constructed to be the conventional dwelling-place of some thought—with this difference, that a cage is generally made with reference to some prospective occupant possibly not yet hatched or likely to be for some time to come; while a sentence is made with reference to a particular thought already conceived, if not matured and expressed. The thought is in the sentence only as a tenant. The sentence—the cage of the thought—as such, is a structure of words. Expel the thought, or fail to see it if it is left there, and the words become, indeed, "an *unmeaning* sentence." But they form a "sentence" still, for all that. As a cage is as much a cage though utterly devoid of its tenant when its soul, the favorite songster, has flown or died, so left it empty or voiceless. To say, therefore, that thought is "the primary *element*" of a sentence is like saying your canary is the primary element of the cage from which it sings to you. Undoubtedly, in the one case the thought as in the other the bird, is the primary—perhaps the object of *interest* or *value*; but a sentence as such consists of "elements," both primary and secondary, consists so of words and points—or, in brief, of words. To define a sentence, therefore, as "a *thought* expressed in words" is more philosophical or correct than it would be to define a bird-cage as "a *bird* confined in a thing of wire or wood." As a cage is a structure for holding a bird, so a sentence is a structure for holding a thought. But inasmuch as sentences without thought are most unnatural, stupid, and useless things—in fact, unworthy of notice—we should define a sentence as "a combination of words *designed* to embody a thought," though this might, all things consi-

be sufficiently correct. We should rather say, that "a sentence is a combination of words not separated by a full stop *embodying* one or more thoughts"—going on the principle that sentences generally do possess some meaning. The combination so called is a structure of words. These, therefore, are its "elements." Accordingly we speak of sentences as long, short, well-constructed and ill-constructed. Thoughts we speak of as sweet, pleasant, vain, holy—but never as long, short, grammatical, or ill-constructed. It is true, we may and often do speak of sentences with reference to the nature or form of the thoughts embodied in them. This is the case when we call language sublime or clear, or when we pronounce a sentence a declarative, or an interrogative, or an imperative, or an exclamatory sentence. But as a thing of grammar or analysis, a sentence is a structure of *words*, consisting of subject and predicate, which in turn consist each of one or more words—not of thoughts, but of symbols of thoughts.

X. X.

HUMANISM ARRAIGNED BY REALISM.

PROF. HENRY MORTON, the President of the Stevens Institute, is an enthusiast for natural science, and seems to favor an almost exclusive training of youth in it. In an address delivered at the inauguration of the Institute he says:

It will perhaps be urged by some that no educational system can be a complete, full, and satisfactory mental training which does not include as an essential feature the classical languages and literature and the metaphysical studies. To this objection, we answer that classical language and metaphysics are so far from being essential to sound mental culture; that, on the contrary, when allowed to have exclusive sway, they tend to dwarf and cripple the human intellect in the most lamentable manner, and we prove this assertion by an appeal to the literary history of the world.

We may answer to this, that exclusive enthusiasm for any specialty whatever tends to cripple the human mind, and to incapacitate it for all higher views. The very way Prof.

Morton attempts to define his position seems to show *this* with peculiar force. Those that claim classical education to be an essential item of general culture can evidently *not* be refuted by the reply that the study of the classics, *when* it is allowed to be *exclusive*, tends to cripple the mind. If our educators would but try to *understand* first the merits of the question they are discussing! The Humanists of *the* present day are very far from claiming "exclusive sway" *for* classical and metaphysical training. But what they claim is, to give to youth first and before all other things *the real possession of their own minds*; and only then, when this possession is fully secured, to admit them to the study of experimental science. By reversing this necessary order, *to* which reversal some of our modern American educators *are* only too much inclined, we shall produce Vogts, Huxleys, and Davidsons; but no Newtons, Keplers, Humboldts, Kants, and Schillers. The further claim of the Humanists that only the classics can give to the youthful mind the *real* "possession of itself" is the point which the scientific enthusiasts of our days generally disregard—because they are unable even to discuss it. In our opinion, the *whole* controversy has long been decided in favor of the Humanists. But it is a favorite maxim of our "Realists" to ignore absolutely what has been proved too evident long ago, and to appeal with refuted reasons to the imperfect judgment of the half-educated.

EDUCATIONAL LEGISLATION.

AN Act was passed, during the recent session of the New York Legislature, creating a Department of Education designed to unite the fragmentary systems of supervision exercised by the State over all institutions of education, whether public or private, including both Academic and free public-schools, which the State in a degree fosters or supports. The system has been double-headed, consisting of the Department of Public Instruction

in charge of the free schools, and the Board of Regents having supervision of incorporated colleges and academies.

For many years there has been a constantly increasing sentiment that some change should be made, that would give unity and vigor alike to all the educational work of the State, of whatever class or grade, and harmonize conflicting interests.

It has been claimed that the Board of Regents was a useless appendage to the educational machinery; a body ornamental and highly respectable, but lacking vitality and efficiency; whose work consisted chiefly in the distribution of a few thousand dollars and the annual compilation of a voluminous catalogue of the institutions subject to their visitation, submitted as a report to the Legislature. This sentiment, whether just or not, found full expression at the late Constitutional Convention, in an effort which sought the entire abolition of the Board of Regents. Again, a bill to that effect was introduced into the Legislature of 1869. No definite action was taken, but near the close of the session a resolution was passed, requesting the Superintendent of Public Instruction "to inquire into the propriety of abolishing the Board of Regents of the University, and to report to the next Legislature, without expense to the State, what legislation, if any, is necessary to place our colleges, academies, and free schools under a more efficient management."

In response to this resolution, the Superintendent, Hon. Abram B. Weaver, made an able and comprehensive report, in which, while he exonerates the Board of Regents from many of the aspersions which have been cast upon it, he submits specific recommendations for the action of the Legislature, which have been chiefly embodied in the Act referred to. The Act does not abolish the Board of Regents, but limits the term of office of members, hereafter to be elected, to ten years, and makes the Board a part of the Department of Education, reporting to the Superintendent as do the trustees of normal schools, county school commissioners, and all other bodies or persons upon whom are devolved special duties in the various departments of the educational work of the State, each distinctive in their

character, but all responsible to one head. In the same manner do the Regents of the University of Michigan report to the head of the educational department in that State.

It thus gives unity to the control of the educational machinery of the State. It sets aside the objections urged against the former organization, that the management of classes in academies for the education of common-school teachers, the supervision of academical departments in public schools, etc., involved a conflict of jurisdiction. It places the State Normal School at Albany under the charge of a local board of trustees in the same manner as the seven other normal schools of the State. It continues the duties of the Regents in the visitation of colleges and academies, and adds to them the visitation of the State Normal Schools. It also continues them in independent charge of the State Library, State Museum of Natural History, State Boundary Monuments, etc.

It is a happy feature of the present plan that a question, which seemed to demand some radical remedy, that was felt of so much importance as to command the attention and earnest consideration of the ablest men in the Constitutional Convention and the State Legislature, should have been settled in so simple and satisfactory a manner.

The legislative and popular approbation has been indicated by the fact that the bill was supported by the leading representatives of both parties in both houses of the Legislature, and has been endorsed by leading public journals of both parties throughout the State. Under the circumstances, it appears somewhat remarkable that the Governor has not yet acted upon this bill, which embodies such a wise and popular measure of reform.

One effect of the bill would be to terminate the office of the present Superintendent of Public Instruction; but the confidence of the Legislature in his fitness for the position was shown in the fact that he was designated in the bill, without partizan opposition, as the head of the new Department.

We print the bill entire, as a matter of general interest -

AN ACT

TO CREATE A DEPARTMENT OF EDUCATION, AND IN REGARD TO THE REGENTS OF THE UNIVERSITY OF THE STATE OF NEW YORK.

The People of the State of New York, Represented in Senate and Assembly, do enact as follows :

SECTION 1. The department of public instruction and the office of superintendent of public instruction are hereby abolished.

Sec. 2. A department of education and the office of State superintendent are hereby created. The present superintendent of public instruction shall be such superintendent of education for a term commencing on the day this Act shall take effect, and ending on the first Tuesday of April, one thousand eight hundred and seventy-three. Thereafter the term of said office shall be three years, commencing on the next day after an election thereto, and continuing until a successor shall be duly elected. On said first Tuesday of April, one thousand eight hundred and seventy-three, and on the first Tuesday of April every third year thereafter a superintendent shall be elected by joint ballot of the senate and Assembly. But, in case of a vacancy occurring in said office before the expiration of the term for which any superintendent shall have been elected, then a superintendent shall be elected in the manner above provided, upon the first Tuesday of April next after the occurrence of such vacancy, for a full term of years, and upon the first Tuesday of April every third year thereafter.

Sec. 3. The said superintendent shall have, in addition to those conferred or imposed by this Act, all the powers, and shall be charged with all the duties heretofore vested in, or imposed upon, the superintendent of public instruction.

Sec. 4. His salary shall be five thousand dollars a year, payable quarterly, by the treasurer, on the warrant of the comptroller.

Sec. 5. Wherever the words "Department of Public Instruction" or "Superintendent of Public Instruction" occur in the laws of the State, they shall, for all future purposes of such laws, be construed to mean department of education and superintendent of education, respectively.

Sec. 6. The Regents of the University of the State of New York shall be nineteen in number, including those now in office who were elected by joint ballot of the Senate and Assembly, and who shall continue to be regents during life, or until other offices shall be vacated as provided by law. All other regents shall be elected by joint ballot of the Senate and Assembly, and the term of every regent hereafter elected shall be ten years, commencing on the day after an election thereto.

Sec. 7. The annual meeting of the Regents of the University shall be held in the Senate Chamber, at the Capitol, on the second Tuesday of December.

Sec. 8. All annual reports of the regents in relation to colleges and academies, as now required by law, shall hereafter be made and submitted to the superintendent of education, at a day not later than the third Tuesday of December.

Sec. 9. The State Normal School at Albany shall hereafter be under the supervision and control of the superintendent of education and a local board, in like manner and to the same extent as are the Normal Schools established under the provisions of chapter four hundred and sixty-six of the laws of eighteen hundred and sixty-six. Immediately after the passage of this Act, the said superintendent shall appoint a local board of not more than nine members, which

shall have all the powers and be charged with all the duties in respect to school, that are possessed by or imposed upon the local boards appointed under the provisions of the act above cited.

SEC. 10. In addition to the duties now imposed upon them by law, it shall be the duty of the regents, by themselves or their committees, to visit and inspect the several State Normal Schools, to inquire into their management, and report thereon to the superintendent of education.

SEC. 11. The regents shall annually report to the superintendent of education on or before the third Tuesday of December, the several institutions entitled to participate in the distribution of the income of the literature fund and of moneys appropriated to the support of academies, and the number of persons in each of them who, for four months during the preceding year, shall have pursued therein classical studies, or the higher branches of English education both, and the said superintendent shall thereafter make, in the same manner now prescribed by law, and delivered to the comptroller, a schedule of the distribution of such moneys; and payment shall thereupon be made to the treasurer, upon the warrant of the comptroller, in the manner now provided by law.

SEC. 12. All moneys appropriated for the purchase of text-books, maps, globes, and chemical or philosophical apparatus for the use of academies, pursuant to the provisions of chapter five hundred and thirty-six of the laws of 1851, shall be paid by the treasurer upon warrant of the comptroller and the certificate of the superintendent of education. And the superintendent shall not draw his certificate for the payment of such moneys for any of such institutions except upon the recommendation of the regents, accompanied by evidence of the trustees of the institution, to which it is to be appropriated, have raised and applied an equal sum of money to the same object, nor a sum exceeding two hundred and fifty dollars to any institution in any one year.

SEC. 13. The treasurer shall pay yearly, upon the warrant of the comptroller out of the income of the United States deposit or literary funds not otherwise appropriated, the sum of eighteen thousand dollars for instruction in academies in the science of common school teaching, under a course of study prescribed by the regents of the university and approved by the superintendent of education, the same to be paid in the following manner, viz.: To the trustees of academies selected for that purpose by the superintendent of education, upon the recommendation of the regents of the university, the sum of ten dollars each scholar, not to exceed twenty scholars in each academy, who shall have been instructed in said academy under the course prescribed in accordance with the provisions of this section, during at least one-third of the academic year in the science of common school teaching.

SEC. 14. The comptroller shall not draw his warrant for any amount above provided, until the trustees of such academies shall have furnished the superintendent of education satisfactory evidence that the course prescribed aforesaid has been thoroughly pursued by a class previously designated and instructed as common school teachers, and who the said trustees believe to be in good faith to follow the said occupation, nor until the superintendent shall have certified such facts to him.

SEC. 15. All acts and parts of acts, in relation to the regents of the university of the State of New York, not inconsistent with the provisions of this Act, shall continue in force.

SEC. 16. This Act shall take effect immediately.

SCHOOL ACCOMMODATIONS.

THE Rev. Marvin R. Vincent, D.D., of Troy, now recreating in Europe, has written a series of sparkling letters to the *Troy Times*. In a recent letter, he thus describes the surroundings of the English school boy as compared with those enjoyed by an American youth:

"A short ride brought me to Leamington Spa, a place which a young clergyman in the carriage said was the best arranged town in England. Of this I had no means of judging, as time did not permit me to do more than run down a single street, which certainly was pretty and trim enough. But at least the town looks well from the carriage window, and has a newer appearance than most English towns of the same size. Once more on the rail, and off at Rugby. There could be but one object of interest there, and to that I speedily found my way. The school buildings are not unhandsome, particularly the new portions. The visitor enters through a spacious gate into a court with cloisters on three sides, out of which open various doors, leading to the kitchen, the school hall, the armory and other apartments. The porter had read 'Tom Brown,' and took it for granted that I had, and accordingly appealed to my recollection of that most healthy and excellent book as he pointed out one place after another. Here was the præpostor Jones's study at the head of the passage, and the smaller dens ranged in order beyond, in one of which Tom and East and Arthur were wont to plan excursions and discuss the morality of 'ponies.' Cosy little places they are, each with its table and lounge and chair, and where two good sized-boys could be just comfortable with close packing. Here was the school hall and the fireplace where Tom was roasted. Here was the kitchen to which the fags descended for hot water for the lords of the Sixth. But such school furniture! How the children of a Troy ward school would open their eyes at such appointments, and consider themselves insulted at being set to work upon such desks and seats! Desks, consisting of plain deal-boards supported on two or three props, long benches of the same material, and the surfaces of both literally encrusted with the work of generations of penknives. Which policy is the better? The American public school furnishes its pupils with light, cheerful, handsome rooms, and pretty desks, and throws upon the student the responsibility of taking care of them. It makes neatness and order and respect of property incidental lessons along with geography and arithmetic. The English school gives its boys a bare, unfinished hall, and school furniture which offers a premium on the most successful mutilation. Assuming at the outset that the young Englishman will scratch and cut and break, it says to him, 'Here is something

that scratching and cutting cannot make much worse, now scratch and cut to your heart's content. You are a young cub which will defile its den, now behold a den which will be little the worse for defiling.' Which plan is the better?"

EDUCATIONAL INTELLIGENCE.

THE EDUCATIONAL CONVENTIONS of this year have been well attended, in spite of the excessively hot weather, and the partial absence of the School Book Agents. The usual enthusiasm, and careless good feeling seems to have prevailed, with only few exceptions. In certain quarters a good natured "mutual admiration" developed itself in rather high degree.

We are not aware of the discussion of any novel subjects, or the promulgation of any new ideas concerning old subjects. No one threatened any very vigorous raid upon the multitude of errors and absurdities which closely surround school teaching and school supervision.

Our space forbids full reports of what was said and done at these several meetings. Instead of reproducing the reports, it might be nearly as well to refer our readers to the printed reports of last year, and the year before, and the year before that—changing merely the names of the officers and speakers. In many cases the names of the speakers need not be changed, though new titles and degrees—such as A. M., LL. D., Dr. Ph., etc., would need to be added from time to time. However, these conventions are doing great good to teachers, and to the cause of education, hence we are glad, each year, to report increased attendance.

A summary of the proceedings of the Convention at Syracuse, N. Y., we will make place for. It has been kindly furnished by the Recording Secretary:—

NEW YORK STATE TEACHERS' ASSOCIATION.

The Twenty-sixth Annual Meeting of this Association was held in Syracuse, July 26, 27, and 28.

The address of welcome was made by President WHITE, of Cornell University. He reviewed the "Battle Fields of Education," the contest being between

of public education and the spirit of bigotry. He favored no sectarianism.

D. BARR, of Rochester, President of the Association, in reply, thanked Mr. Barr for his great efforts in former years in the New York Legislature in behalf of popular education, and attributed to him much of the success of our common school system. In his inaugural address, Mr. Barr traced the course of the education during the past twenty-five years, and in closing commended the work of the State Normal Schools, and advised teachers to add to the elementary studies, and the culture of the higher course.

There are two topics upon which committees report every year. The first, "Condition of Education" was the subject of a report by the Chairman, W. W. WILKINSON, of Albany. The report set forth that the condition of education was encouraging, because more correct ideas on the subject of education are making progress. Now it is deemed to be teacher's work—not simply to communicate knowledge, but to lead his pupils to such habits—intellectual, moral, and social—as shall fit them for the work of life. Formerly teachers proceeded from the general to the particular; now it is the opposite; now we understand that a good educational institution means something more than huge piles of books and mortar, apparatus, etc. The vitality of the institution depends upon the quality of its teachers; ladies still, however, do not get pay commensurate with work.

The other stated report was by Prof. H. KRUSEL, of Oswego. It was upon "Improved Methods in Education," development of principles from scholars, instead of text-books, in accordance with the "The Oswego Methods" was advocated in the report.

Two addresses were delivered, one by Dr. J. W. ARMSTRONG, of Fredonia, who gave "A Chapter on the Origin and History of the Material Universe." No synopsis can do justice to the lecture, which abounded in close logical deductions and real eloquence. It was well received.

The other address was by Dr. S. J. WILLIAMS, of Cleveland. He said that the experiment of giving "A" Grammar School to lady principals in Cleveland had eminently succeeded, the examination of the pupils for admission to the high school, showing ten per cent. better scholarship than under male principals the previous year. He believed in the right of the seat text-books, but had seen lamentable results from their entire abandonment. He also urged upon teachers the necessity of directing pupils in the selection of proper readings.

Each session a number of "papers" were read, usually followed by discussion of the views presented.

The first, by Dr. ARMSTRONG, of Fredonia, was not a "paper," but an exercise with simple apparatus, showing how the principles of centrifugal and centripetal forces can be developed now in a common school, and in like manner of natural science in general; and this, too, by means of very simple apparatus.

In the discussion following, the exercise was highly commended by Dr. L. WORTH, Prof. STEELE, Prof. COOLEY, and others; and the Doctor's recommendations were adopted by the Association.

M. McVICAR, of Potsdam, in a paper on the "Teachers, Our Times, and the Future," drew the line between the theoretical and practical modes of education.

The active and progressive character of our age demands live teachers—teachers of comprehensive ideas, practical minds, and thorough discipline. He commended the use of proper text books.

Dr. C. D. McLEAN, of Brockport, read a paper entitled "The Teacher as a Citizen." The responsibilities of the teacher in educating the child for citizenship were pointedly presented. In the discussion that followed, teachers were reminded that in becoming teachers, they surrendered none of their rights as citizens.

Dr. J. H. HOOPER, of Cortland, read a paper concerning "The True Idea of School Discipline." He felt that virtue and truth must be cultivated, and that the school should be largely governed by good disposition of the pupils.

The discussion following the reading of the paper seemed to turn upon Corporal Punishment.

Dr. S. J. MAY, of Syracuse, said that the rod was abolished in the schools of that city three years ago, and good results had followed. Other means of discipline had been substituted, being mainly rewards.

Dr. C. H. ANTHONY, in a speech which seemed to meet the approval of the

house, replied that he considered this world a great school, and our Heaven Father the school-master; and that we could take lessons from Him in matter of governing pupils. He thought that scholars who were educated without the rod were not fully educated—he pitied the children of Syracuse.

Mr. ROSS, of Seneca Co., who for a quarter of a century has been on hand the champion of the "rural districts," and the great source of merriment, quo Solomon. He didn't so much believe in moral suasion. In visiting an East city school, he ached to get hold of the unruly pupils. He didn't like Boards of Education—they made their teachers mere animals to do their dings.

Prof. H. A. BALCOM, of Coming, read a paper, which proposed to throw on board the study of English grammar.

Mrs. A. T. RANDALL, of Oswego, read a paper, entitled "The School Mistress." A vivid picture was first given of "The School Marm" of the old time. She then paid a handsome tribute to the memory of Mrs. Emma Willard and Miss Ellen M. Seaver; and lastly, showed the progress made in facilities female education, and more equitable compensation of female teachers.

Prof. C. H. ANTHONY, in a paper entitled "School sui generis" gave an account of an expedition under the direction of Prof. Amos Eaton, with competent assistance, which was sent out in 1828 by Hon. Stephen Van Rensselaer, then Patroon of Albany. They were to traverse the State, having the Erie Canal as a base, making geological surveys, examining quarries and mines, and learning adaptation of soils to various purposes, etc., etc. They were to lecture to the people the result of their observations and give instruction in the natural science. It was highly successful, and led to the establishment of the "Rensselaer Polytechnic Institute."

Mrs. H. B. HEWS read a paper upon "Government," which advocated that right of suffrage should be based upon intelligence and morality without regard to sex.

Miss EMILY A. RICE, of Darien, Conn., read a paper upon "Toils and Toil," and Miss ELLEN J. MERRITT, of Potsdam, upon "Our Rural District Schools."

Prof. E. A. SHELDON, from a committee appointed last year, reported a plan for examinations for State certificates, to be under the direction of the State Superintendent and the principals of the State Normal Schools. No final action was taken on the report.

Hon. Victor M. Rice, Mrs. Emma Willard and Miss Ellen M. Seaver, having died during the year, due obituary mention was made by Dr. J. B. Thompson, New York, Chairman of Committee on Necrology.

H. R. SANFORD, of Fredonia, from committee appointed last year, reported revised Constitution and By Laws which were unanimously adopted.

D. J. PRATT, of Albany, the Treasurer, reported \$550 in the treasury.

The following officers were elected for the ensuing year:

President, J. Dounan Steele, Elmira. Vice-Presidents, Miss Silvia J. East, Buffalo; A. J. McMillan, Utica; W. A. Welch, Onondaga Valley; Miss Can Peterson, Oswego. Corresponding Secretary, Jas. Cruikshank, Broome. Recording Secretary, H. R. Sanford, Fredonia. Asst. Rec. Secretary, E. C. Sodus. Treasurer, D. J. Pratt, Albany.

The next meeting will be held at Lockport, July 25, '71. The exercises interspersed by music from singers of Syracuse, and readings by Mrs. F. Randall and Miss H. L. D. Potter.

At the meeting of the School Commissioners and City Superintendents, held at Syracuse, July 25th and 26th, the following officers were elected for the year: President, Edward Smith, of Onondaga County. Vice President, A. H. Pierson, Tompkins; M. S. Laughlin, St. Lawrence. Recording Secretary, E. Osborn Broome. Corresponding Secretary, S. G. Ellis, Monroe. Treasurer, J. McGonigal, Wayne.

The next meeting will be held in Utica, on the second Tuesday of May, 1872. We understand that the entire proceedings of the recent interesting meeting are to be published in pamphlet form.

WISCONSIN.—The Eighteenth Annual Session of the Wisconsin Teachers' Association, held at Watertown, J.

12-14th, was a decided success. Over 400 teachers were in attendance. Addresses were made by W. D. Parker, S. S. Rockwood, H. A. Brown, T. Bernhard, J. T. Lovewell, and A. H. Everett. Evening Lectures were delivered by R. Edwards, of Nornval, Ill.; E. O. Haven, of Evanston, Ill., and W. E. Merriman, of Ripon, Wis. The officers of the ensuing year are: President, Robert Graham; Vice Presidents, D. E. Holmes, T. C. Pomeroy, B. M. Reynolds; Secretary, A. Earthman; Treasurer, G. W. Heath; Executive Committee, W. D. Parker, S. Shaw, G. S. Albee, W. A. Delamatyr, and D. G. Purman.

TEXAS.—Gov. Davis, in his message to the Legislature, recommends a careful consideration of the question of providing for the education of the children of the State, and gives the subject such a prominence that in all probability, we shall soon hear that Texas is not behind her sister States in educational matters.

LA PORTE, IND.—The Report of the Superintendent (Mr. C. E. Otis) shows the whole number of pupils enrolled in 1869 to be 1,144; the average number belonging, 775; the average daily attendance, 732, or 95 per cent.; the number of teachers employed, 19; the number of pupils in high schools, 60; number of graduates, 10. The progress made during the year has been satisfactory, and a review of the work done gives indications of steady advancement.

MADISON, WIS.—The Board of Education employs one male and twenty-one female teachers, at salaries ranging from \$360 00 to \$1,500 00. The total number of seats in the schools is 1,125. The average number of pupils belonging to the schools is 1,074; the average attendance, 994. The Report of the Superintendent (Mr. B. M. Reynolds) does not give much statistical information, but is made up of observations on discipline, corporal punishment, instruction, etc.

WORCESTER, MASS.—The Report of the Superintendent shows that Worcester can still afford to maintain schools of the first order, and support them liberally. From

the summary of statistics, we learn that the number of children in the city between the ages of five and fifteen years is 6,846; the average number belonging to schools, 6,322; the average daily attendance, 5,610, or more than 90 per cent. The number of male teachers was 9, number of female teachers, 129—total 138, of whom 8 graduated at either of the State Normal Schools. The whole expense of the School Department, including cost of lots and buildings, \$207,956 80, of which \$77,631 78 was for teachers' salaries; \$3,575 00 for salaries of school officers; and the balance for buildings, incidental expenses, etc. The average cost per scholar in all the schools was \$15 44; in the evening schools, \$4 31. There are 31 school-houses belonging to the city, the number of sittings being 6,877. The average age of pupils is about 10 years. The evening schools are in session four months, and have an average attendance of 100, or 12.5 to every teacher employed.

CURRENT PUBLICATIONS.

THE latest work on Political Economy¹ appears to be rather a dissertation on political economy than a close and logically built-up definition of the same. It discusses the subjects of wealth, labor, and capital, and devotes a chapter to the refutation of the Malthiesian theory of population. From the chapter on "Rent," the following is extracted :

"The entire science of English Political Economy may be said to be built upon three leading theories—that of Adam Smith, concerning Free Trade; that of Malthus, in regard to Population; and that of Ricardo, in regard to Rent. They are intimately connected with each other, and a full appreciation of the mixture of truth and falsehood which they contain would tend to clear the science of its

¹ AMERICAN POLITICAL ECONOMY, including Strictures on the Management of the Currency and the Finances since 1861. By FRANCIS BOWEN. 8vo., pp. 495. Charles Scribner & Co., New York.

al, English character, and to fit it for universal acceptance and utility."

Many dictums of these worthies on all the above questions are condemned as inapplicable to new countries, and the economy of nature defended against the assaults which have so long been made against it in Great Britain." The other part of the work is devoted to The Theory and Uses of Money, The Substitutes for Money, The National Bank-System, National Debt, Taxation, concluding with a chapter on the doctrine of International Exchanges, showing also the limits of Free Trade and the protective system. From this notice it will be perceived that it really is what it professes to be, "An American System of Political Economy." The debated points throughout it are examined with great fairness, and the opinions on both sides fully exhibited. It will be a very valuable addition to college literature, and it would not be amiss if the chapter headed "National Debt" were published in pamphlet form, so that our people generally could obtain truthful information on that very important item. In these times a carefully written book on the subject of political economy is a public good, and a simpler and more condensed work on it would be a present benefit to the schools, and would doubtless prove a future blessing to the community. At present we have only Dr. Wayland's, which is really a re-hash of the English system, in many respects, proved by the work before us, unsuited to the United States.

MESSRS. HARPER & BROTHERS, Franklin Square, New York, have published during the past month the following: THE ROB ROY ON THE JORDAN, Nile, Red Sea, and Mesopotamia, etc. "A Canoe Cruise in Palestine and Egypt, and the Waters of Damascus." By J. Maggregor, A. With maps and illustrations. 464 pages. LIFE, LETTERS, LECTURES, AND ADDRESSES OF FRED. W. BERTSON, M.A. incumbent of Trinity Chapel, Brighton, 1847-1853. Complete in one volume. 840 pages. MAN AND HIS WIFE, a Novel. By Wilkie Collins. With a portrait and many illustrations. Cloth, 239 pages. SPEECHES, LETTERS, AND SAYINGS OF CHARLES DICKENS, to which is added a Sketch of the Author. By George Augustus Sala, 1854. Dean Stanley's Sermon Paper, 150 pages, price 50c.

MESSRS. WILSON, HINKLE & Co., of Cincinnati, publish just as we are going to press:

A PRIMARY ARITHMETIC, uniting oral and written exercises in a natural system of instruction. AN INTERMEDIATE ARITHMETIC, uniting mental and written exercises in a natural system of instruction. A COMPLETE ARITHMETIC uniting mental and written exercises in a natural system of instruction. By E. E. White, M.A. The same firm has just published A COMPLETE ALGEBRA FOR SCHOOLS AND COLLEGES. By A. Schuyler, M.A., professor of mathematics in Baldwin University.

MESSRS. D. APPLETON & COMPANY, New York, have recently published: (1.) THE FIRST BOOK OF BOTANY. By Eliza A. Youmans. It is designed to cultivate the observing powers of children. 183 pages. (2.) THE NATURAL SPEAKER. By Joseph Heden, D.D., LL.D. It is made of selections to aid the student in acquiring a simple, natural, business-like style of speaking. (3.) A PRACTICAL GRAMMAR OF THE GERMAN LANGUAGE. By Hermann Wrage. (4.) CÆSAR'S COMMENTARIES ON THE GALlic WAR, with explanatory Notes, a copious Dictionary, and Map of Gaul. By Albert Harkness, LL.D.

SAMUEL R. WELLS, 389 Broadway, New York. LIFE AT HOME; or, The Family and its Members. By William Aikman, D.D. 250 pages, price \$1 50.

CHARLES C. CHATFIELD & Co., New Haven, Conn., have issued No. 3 University Series, AS REGARDS PROTOPLASM in relation to Prof. Huxley's Essay on the Physical Basis of Life. By James Hutchison Sterling. Paper, 71 pages.

THE AMERICAN NEWS COMPANY, New York. THE CHEMICAL HISTORY OF THE SIX DAYS OF CREATION. By John Phin, C.E., editor of the "Technologist."

MISCELLANEA.

J. D. STEELE, A. M., of Elmira, N. Y., has had the honorary degree of Dr. Ph. conferred upon him by the Regents of the University of the State of New York.

ORANGE JUDD has given \$30,000 to endow a new professorship at Wesleyan College. His donations now amount \$100,000.

AT school, at Wallsend, near Newcastle, the master asked a class of boys the meaning of the word "appetite," when, after a short pause, one little boy said: "I know, sir; when I'm eating, I'm appy; and when I'm done, I'm tight."

A colossal statue of governor Jonathan Trumbull has been placed in the art gallery of Yale college.

THREE BOYS in Trenton, N. J., have constructed a telegraphic line between their residences, and, instead of spending their evenings on the streets—playing with Tom, Dick, and Harry—remain at home, holding familiar conversation with each other over their wires. We know also of a boy, of ten years, in Cambridge, who owns, and with the aid of an older brother, works a Novelty printing press, with which he has already, within a few weeks, done over sixty dollars' worth of job-work. He finds plenty to do in the line of cards and hand-bills at fair prices. Parents who are troubled with roving sons will find a suggestion here.

A VERY skilful and successful teacher of children is wont to express her indebtedness for much of her success to the following rules which were first put into this shape by JACOB ABBOTT:

"When you consent, consent cordially." "When you refuse, refuse finally." "When you punish, punish good naturedly." "Commend often." "Never scold."

Some bulky books contain less practical value than these short sentences.

"PEOPLE," says a modern philosopher, "go according to their brains—if these lie in their head, they study; if in their stomach, they eat; if in their heels, they dance."

A SCHOOL at which negroes will be taught architecture, phonography, telegraphing, etc., is to be started in Louisville.

THE renowned French painter Monvoisin died in April last at Boulogne, in his eightieth year. His most celebrated picture was "The Ninth Thermidor," which subjected the artist to a political persecution. He was compelled in consequence of it to emigrate to the United States, whence he returned to France, only four years ago.

MR. CUYCKANICKPUCKS Yakutskolitmilks Sakiatskylitmilks Ankachagamuks Kekutonekutzokorts, who keeps a hotel at Sitka, Alaska, says that the Americans have the queerest names he ever heard of, and it is with the utmost difficulty he can pronounce them.

REV. Thomas W. Tobey, principal of Paducah Female Seminary, has been appointed professor of ancient languages in Bethel College, Russellville, Ky.

VERMONT has elected three female superintendents of schools.

A LADY in Westchester County, N. Y., wishes to secure a position as teacher of *mather-matics*. She has an *idear* that she will succeed; but cannot give references, as her late teacher has *gorn traverling*. We should think so.

"YOU are very stupid, Thomas," said a country teacher to a little boy, eight years old. "You are a little donkey; and what do they do to cure them of stupidity?" "They feed them better, and kick them less," said the arch little urchin.

A SAN FRANCISCO school-teacher received the following: "I hope, as to my John, you will flog him just as offin as you kin. Heas a bad boy—is John. Altho I've bin in habit of teachin him myself, it seem to me he never will larn anything—his spellin is ottragously deficient. Wallop him well, sir; and you will receiv my thanks. P.S. What accounts for John bein such a scholar, is that he is my sun by my wife's fust husband."

SCIENTIFIC.

THE ZODIACAL LIGHT AND TERRESTRIAL MAGNETISM.—Balfour Stewart, F. R. A. S., some time since suggested that auroral displays may be secondary currents due to small but rapid changes in the magnetism of the earth. He now adds that the *zodiacal light* may also be somehow connected with the phenomena of terrestrial magnetism. He says: "For not only will secondary currents be caused in a stationary conductor in presence of a magnetic core of variable power, but also in a conductor moving across the lines of force of a constant magnet. The question arises, have we on the earth such moving conductors? In answer to this, let us reflect what takes place at the equator. When once the anti-trades have reached the upper regions of the atmosphere, they will become conductors from their tenuity; and as they pass rapidly over the lines of the earth's magnetic force we may expect them to be the vehicles of an electric current, and possibly to be lit up as attenuated gases are when they conduct electricity. May not these form the zodiacal light?"

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SLATE PENCILS—HOW AND WHERE THEY ARE MADE.

A**FTER** a careful search through all the works within my reach, including the all-knowing "Appleton," and by others of considerable fame, I was obliged to confess I had not gained a single fact in relation to slate pencils. Of your numerous readers, probably every one used a slate-pencil more or less, and knows that there is a hard, black kind, full of grit, and a soft, light-colored one, usually called soapstone; yet I dare say that not one in a thousand knows how or where they are made, or what the difference between them is. The black variety comes from many; but the light or soapstone pencils, whether the perfectly round pencils of the present day, or those which used to get years ago, and which seemed to have been chipped out with a knife, are manufactured from a deposit of soapstone in the north-west corner of the town of Castleton, Vermont, about eight miles west from Rutland, and about a quarter of a mile from Lake Bomoseen. The tract of country known to contain the stone is very small, being at most only one and a half miles long and half a mile in width. As far as known, this is the only deposit of rock fit for making pencils of this kind in the world. Every inch of the country miles and miles around has been searched in vain to find

another outcrop. Probably there is more of the stone in the world, but certain it is that none having just the right grain has yet been found in the United States; and Castleton has the honor of being the only place in the world where the pleasant-working soapstone pencil is made.

The light green color, and soft, chalky character of the stone are known to all. Although it is called a soapstone, it is not strictly so. In the beds it seems more like an indurated clay than any thing else; yet it is much harder than clay, and has a grain more like slate, which it resembles very much, splitting readily into plates. Silica and alumina enter very largely into its composition, as well as potash and iron. Although containing more than fifty per cent of silica, it does not appear to have any grit. The tools employed in cutting it hold an edge nearly as well as in a wood of equal density. The beds "dip" at an angle of about forty-five degrees. The general line of "strike" is north and south.

The stone as it comes from the quarry is split into slabs from one to two inches thick, which are then taken to the factory. This is a large, two-story building with a basement. Upon one side is a wing, constituting the engine-house, where a very fine eighty-horse power engine furnishes the motive-power for the machinery. The stream upon which the factory is situated follows the general direction of the ledges for nearly a mile. Its course has several times been changed to allow quarries to be opened.

The slabs are taken to the first floor of the mill, where they are sawn up into blocks six or seven inches long and four or five inches wide. The saws used are very similar to those used in cutting wood, except that they are not above twelve inches in diameter. From the saws the blocks are carried to the "splitting-table," where workmen, seated upon the edge of the table, split the blocks into plates or slabs about one-third of an inch thick. This is done with a hammer and a thin bit of steel, looking very much like the blade of a carving-knife. The plates are now much thicker than the pencils are to be, and uneven besides. The next thing is to plane them. This is done by two broad knives, like the irons of a carpenter's plane, but much larger.

These are set like a letter > with a small opening at the point. As the plates enter at the point of the > the edges are cut off all superfluous stone, leaving the slabs ready for the "Rounding machines."—These machines, though perfectly simple and easily understood, when once seen, are difficult to describe. The problem solved by the machine is to make round pencils from flat plates of rather brittle stone. The essential part of the machine is a series of steel knives made from square bars of steel, the edge or lower side of which is shaped thus:



The plates are forced along beneath this knife or "cutter," which makes a number of grooves upon the surface. About six inches behind this first cutter is a second, set so as to cut a little deeper, and after this another and another, until the plate has been carried beneath eighteen of these cutters, when it comes out looking precisely like a small stone washboard. As the plates come from this machine, a man sitting at the end of it takes them up and feeds them into a machine exactly like the first, excepting the little tables that carry the stone under the cutters, which are grooved to hold the half-made pencils. As they come from this last machine, boys gather them up and pile them up in boxes upon the elevator. They are then carried into the second story, where they are sawed to the proper lengths. The longest are six inches, the next five, then four, and some three and a half. Though really the cheapest pencils, these shorter sizes do not find as ready a sale as the longer. Three four-inch pencils do not seem nearly as long, to the "ciphering" community, as a single five or six-inch one at the same price. The cutters for the rounding machines, considering their size and the amount of labor expended upon them, are very expensive. They are less than an inch square, and about eight inches long, and have perhaps twenty transverse grooves; and the company pays for them, by the quantity, \$90 each.

Sharpening pencils, (by which we do not mean the primitive method of the jack-knife,) though a simple operation, comes a question of importance when it has to be per-

formed upon forty or fifty thousand per day. The demand for a ready-sharpened pencil has become so great that a machine for doing it rapidly and well has become a desideratum. Several have been tried, but as yet with small success; and at present the pointing is done by holding pencils separately upon a grindstone.

A new idea, or rather an old one borrowed from foreign black pencils, has recently been introduced, and pencils for children's use are often painted in colors. Even older folks know how disagreeable to the fingers is a new pencil, with its coating of dust. The children, however, particular, chose pencils as they do Sunday-school books taking the bright-colored ones in preference.

The factory, under the most favorable circumstance could probably produce from 75,000 to 100,000 pencils per day; though, for various reasons, the number does not usually run above 50,000. The supply of "stock" is unlimited; and, as the demand for the pencils increases, the supply will be made to correspond; so that it is not at all improbable that in time the world could be supplied with pencils from this Vermont factory. The transportation is so small and compact an article forms so trifling an item in its cost, that the retail price is the same everywhere. During the last twenty years, this pencil has driven all others from the California market, and in time will probably do the same for the markets of the Atlantic and Mississippi States. One of the first orders filled by the company was for 30,000 pencils to be carried to South-Africa by an American missionary.

The quarries are situated along the line of the stream already mentioned. On account of the softness of the rock it is impossible to tunnel into it without expensive timbering, and so wherever it is taken out, the excavation extends from the surface all the way down. Gunpowder is used to loosen and break up the stone, which is then hoisted or split up into slabs, and *immediately* taken to the mill. Like some slate rocks, if it once becomes dry, or is exposed to the air for any considerable time, it is spoiled. It grows hard and brittle, and will neither split, nor, if split, make pencils. It can, like slate, be kept for a short time if placed beneath the water; but even then its quality is impaired. One

the most recently opened quarries seems to be beneath the site of an ancient Indian burial place. Human bones, arrow-heads, and flint implements were found in digging through and removing the dirt above the rock.

Were the supply any less abundant, the waste attending the manufacture would be something much to be regretted, since scarcely one hundredth part of the rock taken from the quarry makes its appearance in the form of pencils. There is, in other words, more than ninety-nine per cent. of waste, an amount almost incredible to one who has not watched the process. Mr. Brown, of the pencil-works, having a Yankee's ingenuity, and a Yankee's aversion to unnecessary waste, has devised an excellent use for the unavoidable refuse of this manufacture.

For some years, paper-makers have employed clay to fill the pores of the paper pulp, and give it "body" and a satin surface. But clay is liable to be gritty, and it darkens the paper, so that it can only be used in the darker grades. Mr. Brown has a patent covering the use of ground stone of any kind for this purpose, and commonly called the kaoline or argillite patent. Argillite is the name of the white slate-pencil stone. After the patent was obtained, a set of machinery like that used in flour-mills was put into the basement of the factory, and the dust and waste from the manufacture of the pencils ground to a powder three grades finer than the finest double-extra flour. Being very light in color and free from grit, it can be used in the manufacture of fine white printing-papers as well as letter-paper, so filling the pores that even without sizing it is possible to write upon it, while the surface is like that which has been calendered.

While the patent was pending in this country, and before it was granted, some one found means to get copies of specifications, and obtained a patent upon them in England. The idea met with favor in that country, and at least one paper company searched up and down all England for the argillite; but none was to be found, and they were obliged to send to Vermont for the desired article. In the end, therefore, the fraud only amounted to saving the American company the expense of an English patent.

Owing to the peculiar composition of the stone, it is quite probable that still further useful applications will be found for the refuse.

The stone has been known as a "pencil rock" among the inhabitants hereabout for years; and pencils were occasionally put into the market; but previous to 1846 there were very few. Twenty-three years ago, Mr. H. O. Brown began the manufacture of slate-pencils, getting the stone from this place and carrying it to Rutland, where it was made into pencils by splitting into slabs, cutting into strips by hand with a carpenter's saw, and *whittling* the square strips to a tolerably round shape. When a boy at school, Mr. Brown and his school mates used to think themselves lucky to get a bit of this rock for pencils, and on one occasion he paid ten cents for a piece no larger than his two fingers. He determined to know where the ledge was from which that stone was obtained. Few at that time knew the location. The glen in which the ledge is situated was then hidden in a dense forest. By the merest accident, through some boys he met while hunting for the place, he learned its location. Ten dollars was the result of his sales of pencils made from the bushel of stone which he got at his second visit. During the winter he got out stone enough to make three thousand pencils. The stone was all carried to Rutland, and the pencils made there.

When Mr. Brown first spoke of going into the business, and was making permanent arrangements for it, people sneered at him, asking if making *slate-pencils* was not rather small business. His reply was, "Look here; wouldn't you rather have one of these soft pencils than one of those hard, black, gritty things?" "Yes." "Well, every body is just like you, and will get one of these if he can; and if every body uses them, there must be money in it." And so it proved. After a long struggle with poverty and rival owners, he has succeeded in getting the control of all the pencil-stone under one management, the style of the firm being the Adams Manufacturing Company, named after the senior partner. At present, there are about one hundred hands, men and women, employed in and about the factory by the company.

Near the quarries mentioned is another, in which the stone is of a rich dark purple color. Could any means be found to harden this stone, it would be of the greatest value for making school-slates, as it has every other requisite for a first-class article.

PERDIX, in "*Manufacturer and Builder.*"

THE IMPORTANCE OF LEARNING A TRADE.—Why is it that there is such a repugnance on the part of parents to putting their sons to a trade? A skilled mechanic is an independent man. Go where he will, his craft will bring him support. He need ask favors of none. He has literally his fortune in his own hands. Yet foolish parents—ambitious that their sons should "rise in the world," as they say—are more willing that they should study for a profession, with the chances of even moderate success heavily against them, or run the risk of spending their manhood in the ignoble task of retailing dry goods, or of toiling laboriously at the accountant's desk, than learn a trade which would bring them manly strength, health, and independence. In point of fact, the method they choose is the one least likely to achieve the advancement aimed at; for the supply of candidates for positions as "errand boys," dry-goods clerks, and kindred occupations is notoriously overstocked; while, on the other hand, the demand for really skilled mechanics, of every description, is as notoriously beyond the supply. The crying need of this country to-day is for skilled labor; and that father who neglects to provide his son with a useful trade, and to see that he thoroughly masters it, does him a grievous wrong; and runs the risk of helping, by so much, to increase the stock of idle and dependent, if not vicious, members of society. It is stated in the report of the Prison Association, lately issued, that of fourteen thousand five hundred and ninety-six prisoners confined in the penitentiaries of thirty States, in 1867, seventy-seven per cent., or over ten thousand of the number, had never learned a trade. The fact conveys a lesson of profound interest to those who have in charge the training of boys, and girls too, for the active duties of life.—*Manufacturer and Builder.*

WHO PATRONIZE THE PUBLIC SCHOOLS?

THIS question has become important in proportion as the system has made inroads upon schools established on other bases. The friends of secular private schools claim that the public schools are established for the poor people not able to pay tuition, and that the wealthy class do not patronize them. The friends of parochial schools, on the other hand, claim that the poorest class of children are not provided for by our system—that, in short, the necessity rests upon them not only to build and support orphan asylums, almshouses, hospitals, insane retreats, etc., but also parochial schools. On this basis they would claim a division of the school fund. That the next step would be the support of the churches direct, by taxation, is evident from the nature of the arguments used by them in discussing the school question. In fact, for the reason that schools under the control of the church are taught wholly, or in part, by the clergy, such a division of the school fund as is proposed is already an appropriation for the Church, and is thus opposed in spirit to the first amendment to the Constitution of the United States, and to similar articles in all the State constitutions.

It is a mistake, on the part of a certain portion of the community, that they wish to thrust upon the public schools the responsibility of the entire education of the child. When told that the State declines to take charge of the religious education of its school children, they allege the inseparableness of secular and religious education, and demand that the State shall proceed to surrender to them the secular part of the education, in order that they may unite with it the religious part in such proportion as they approve. If the lesson of history has taught us anything, it is that the separation of Church and State is the safeguard of individual liberty. Freedom for all to follow the dictates of conscience is the corner-stone of republican institutions. These institutions can never flourish except upon the conviction that the secular itself is of vital importance, and that it embodies enough that is rational to permit its organization as a separate independent whole. Since this

conviction has begun to grow—and its beginning dates back in the thirteenth century—it has been found that every instance of union of Church and State tended to the corruption of the former and the weakening of the latter. For these reasons it has been a settled principle in this country to separate secular and religious instruction far more than is done in Europe, and this principle has prevailed to such an extent as almost to secularize even our parochial schools.

However honest men may differ on the question of the desirability of the union of the Church and State, it is certain that the public school system has been regulated with a sincere desire to respect the feelings and wishes of all. The hours of instruction are limited to five and a half per day for five days in the week, thus leaving the greater portion of every day, besides two days entire each week, for other duties. Since it is the practice, even in parochial schools, to give a separate hour for religious instruction, and not to mix it up with all the other branches taught, it is clear that lessons given in religion outside the regular school hours, are not, in fact, sundered very much more from other lessons, than those given within the school hours of parochial schools, which hold sessions seven or eight hours in length, for the purpose of obtaining the necessary time for both kinds of instruction. Any one acquainted with the workings of schools in general will know that such lessons cannot be so effectual when brought into the regular school course. This will readily appear upon consideration. In the first place, the pupil gets physically and mentally exhausted by the confinement of such long school sessions. If the session is not lengthened, but the time for religious instruction taken direct out of the time for the secular recitations, then, of course, the pupil makes slower progress in the latter. Moreover, the religious teacher is liable to neglect what comes in an extensive routine, and will not concentrate all his energies on the work of religious instruction so fully as when he has that specific task, and nothing else, to perform. Division of labor is the great economical principle. Let the community see to it that our public schools are free from sectarian bias of what-

ever kind, and then the Church, by its appropriate instrumentalities, will best perform its mission.

In the purely secular schools are taught those technical instrumentalities (reading, writing, arithmetic, geography and grammar), *which prepare the pupil not only for practical life, but for religious training as well.* If this is not done beforehand, the religious teacher has to interrupt his purely religious work, and take up the spelling-book and primer, in order to get a basis for the reception and comprehension of his religious instruction. Is it not clear that this interruption weakens and dissipates the forces of the Church, and that what is done in the public school toward giving the pupil a knowledge of elementary branches is so much done to assist the religious teacher and save the strength and resources of the Church?

These considerations are thrown out to present, in its true light, a subject that has been frequently misstated. That all classes of the community support the Public Schools, without regard to the station occupied or employment engaged in, is clear from the following table:

OCCUPATION OF PARENTS.

Children of agents.....	526
“ artists.....	121
“ barkeepers.....	445
“ boarding-housekeepers and victualers.	448
“ boatmen.....	803
“ butchers.....	363
“ clerks.....	814
“ draymen and teamsters.....	807
“ farmers and gardeners.....	404
“ day laborers.....	2,623
“ laundresses.....	583
“ manufacturers.....	1,414
“ mechanics.....	4,752
“ merchants.....	2,426
“ public officers.....	535
“ professional men.....	801
“ seamstresses.....	628
Unclassified.....	2,654

WM. T. HARRIS, in “ *The Journal of Education.*”

ENGLISH LITERATURE.

SECOND PART.

"It can need no argument to show that the study of our ancient mother-tongue is an important, I may say an essential, part of a complete English education."

Hon. GEO. P. MARSH.

PERIOD OF ORIGINAL ENGLISH.

A DISCUSSION of our literature previous to the year 1558, involves the consideration of philosophy and the science of language, for, as has been observed, the earlier changes are more marked in the language, while the later growth is apparent in the organic nature of the literature itself.

The science of language, or comparative philology, is of recent development. The idea of using philosophy in philological studies had been expressed by Lord Bacon, but previous to the present century it had not taken a very firm hold upon the minds even of the learned. In 1605 Bacon divided Grammar into two parts—the one literary, and the other philosophical. He conceived the second to be a noble kind of grammar, and said that "if any one well versed in various languages, both the learned and vulgar, should treat of their various properties, and show wherein each of them excelled and fell short—thus languages might be enriched by mutual commerce, and one beautiful image of speech, or one grand model of language for justly expressing the sense of the mind, formed like the Venus of Apelles, from the excellencies of several." He said further, that words are the traces or impressions of reason, and argued that as impressions afford some indication of the body that made them, they are worthy of deep philosophical investigation.

In 1710, Gottfried Wilhelm von Leibnitz strongly urged the study of language upon exact scientific principles; and three years later suggested to Peter the Great that the translation of the Lord's Prayer, the Ten Commandments, etc., into the various languages of his dominion would increase his Majesty's glory, aid the study of language, and

advance Christianity. But Leibnitz, like Lord Bacon, was in advance of his age; and it was not until two generations had passed that his suggestion bore fruit. At that time Catherine II. caused the publication of a comparative glossary of two hundred and seventy-two languages of Africa, America, Asia, and Europe. This awakened much interest, and the study of language has since been pursued upon more scientific principles.

A new impetus was given by Sir William Jones, one of the most remarkable linguists of his day. A thorough student of Oriental literature, he became deeply impressed with the value of Sanscrit as a guide to the scientific knowledge of many cognate languages. He asserted as probable that Latin, Greek, and the Gothic and Celtic tongues originated in it. In 1784 he founded the Asiatic Society, and from that time progress was very rapid in philological studies.

Sanscrit is the learned language of Hindustan, and has not been spoken for over two thousand years. Its name indicates that it is the polished language. It embodies the sacred Vedas, and, in the well-considered words of Max-müller, exhibits the most ancient chapter in the history of the human intellect. Some of the fruits of the study of this venerable tongue are presented in Farrar's *Families of Speech*. It has tended to counteract the too great devotion to classical studies. These had given the mind of Europe a one-sided and injurious development. It has further considered possible the working out of a true philosophy of history, and has proved "that all those nations that have been most remarkable in the history of the past, and which must be all but universally dominant in the history of the future, sprang from one common cradle, and are closely united by identity of origin and similarity of gifts." The languages in the class referred to are called Indo-European or Aryan, and to it belong the Sanscrit, Teutonic, Slavonic, Celtic, and Romanic tongues, each of which exists in various branches.

About forty years ago, Jacob Grimm laid the foundation for the historical investigation of language in his *German grammar*, one of the greatest philological works of the age. He also discovered what is now called "Grimm's Law" of

the interchange of consonants in the corresponding words of the different Aryan languages. A simple example will suffice to show this change in the consonants. *Pitar* in Sanscrit became *fadar* in Gothic, *vadar* in Low German, and *rather* in English. Nine hundred Sanscrit roots have been found thus appearing with similar permutations in the languages of Europe.

This hasty glance at the science of language must suffice for the present. Further study of it would make it more interesting, and would show its great importance in its literary, philosophical, political, historical, and religious relations.

Let us look over the languages of Europe. We find them in five classes :

I. The *Celtic*, which is now found only in the Highlands of Scotland, the wildest parts of Ireland, the Isle of Man, the mountainous regions of Wales and Cornwall, and Brittany. The Celts led in the early emigrations from the East, and their language, after having crossed over the continent of Europe, is now only found lingering on its extreme western borders, where it is year by year losing its claim to be considered a living speech.

II. The *Romanic*, which is found in Italy, France, Spain, and Portugal. These all originated in the language of the ancient Romans, and exhibit evident traces of their Latin origin.

III. The *Gothic*, which exists in two divisions. The first includes the *Scandinavian* languages, among which are those of Iceland, Denmark, Norway and Sweden. The second includes Frisic, High and Low German, Dutch and English, which are called *Teutonic*.

IV. The *Slavonic*, of which the principal divisions are the Russian and Polish. This class of languages covers a vast extent of territory in Europe, Asia, and North America.

V. The *Uralic*, which is used by the Fins and Laplanders. It receives its name from the Ural mountains, and extends into Asia.

By looking on a map of Europe, we find that the migrations of the nations have pushed the *Celtic* language to the extreme western verge ; that the *Romanic* are confined to

the southern part; the *Slavonic* to the eastern; and the *Uralic* to the northern countries; while the great central portion is occupied by nations speaking the *Gothic* tongue. This distribution of languages is not an arrangement of man, but the fulfilment of a design which has governed the movements of nations for many generations.

The language which we use is described as belonging to the Teutonic division of the Gothic branch of the Indo-European tribe of languages, and the classification we have just made will show us that the description is a true one. We have already learned that the changes in English have been gradual; let us now remember that they not been radical—that the roots may be traced back pure and unmixed through Low German and Gothic to their home in the birth-place of the Aryan language. Max Müller, probably the highest authority on this subject, says: "Not a single drop of foreign blood has entered into the organic system of the English language. The grammar, the blood, the soul of the language is as pure and unmixed as spoken in the British Isles as it was when spoken on the German Ocean by the Angles, Saxons, and Jutes of the Continent."

We are now prepared to enter more particularly upon the study of the earliest expressions of our language. We find them in rude lyric poetry. To this class belongs also the *Rig-Veda*, the earliest of the Hindu writings, and the Book of Job, attributed to nearly the same period, is in Hebrew poetry. So, too, in France, there were the *troubadours*; among the Scandinavians were the *scalds*; the Greeks had their *rhapsodists*, and our forefathers took delight in the song of the *Gleeman*. The office of each of these classes was to publish literature. It is natural that poetry should thus precede prose, because it expresses those sentiments which occupy the uncultivated mind which is not prepared to confine its attention to the reasoning and discussions that, with equal naturalness, are committed to prose.

Let us imagine ourselves in one of the great festive halls of a thousand years ago. The Englishmen before us are ready to join in ale-drinking, and to hear the glee-man's song. The hall is well adapted to its use, being lofty and broad, with arched roof, having hearth-stones and great

l fires down the middle. We notice the gilded liquor-the benches for the warriors, and the dais for the chief his thanes, and his wife. The appearance of the bard as a temporary quiet, and we call upon him to recite earliest epic poem. Taking an honorable position, he sings the romantic tale of *Beouref*. He sings of the cruel stations of a monster, Grim Grendel—how he came from the fens and the fastnesses, and killed the thane's dsharers. Now, pointing southward, he tells of the g of a wrough-stem, foamy-neck vessel, bearing Beou- and his chosen champions to the shore-cliffs and wide lands of the north. As the stirring song progresses, see the strong mendelark, their bright ring-shirts clank- and glistening as they come over the bulwarks to the h. The reception by the warder, the march to the d-house, the interview with the thane, and the festivi- in his presence, the terrific combat between Grim idel, whom no weapon could hurt; and Beouref, whose l-gripe was that of thirty men—the conquest of the ster by the man—these and many other tales are told while the thrumming of the harp stirs the warriors, and es our own hearts to beat responsive to the romantic ies of the prowess and chivalry of the early Englishmen. urning now from the ale-drinkers, let us look upon the r inmates of the monastery of Whitby, which was in k, not far from the mouth of the river Erke. It is the e of the humblest of the inmates that we hear, and this hat he sings:

For us it is very right that we praise with our words, love in ds, the kceper of the Heavens, Glory-King of Hosts! He is source of power, the head of all his great creation, Lord ighty. He never had beginning nor was made, nor cometh end to the eternal Lord; but his power is everlasting over venly thrones. With high mājesty, faithful and strong, he h the dcpths of the firmament that were set wide and far for hildren of glory, the guardians of souls!"

et us listen as he continues, and tells of the creation, the of the angels, the fall of man, the stories of the patriarchs, incarnation, the ascension, and of the last judgment. ating of satan, he gives us a version of his speech when thoughts welled within him, as he compared the narrow

place of his punishment with the abode of beauty that he formerly knew, high in heaven's kingdom. Here are the words of the poet giving the supposed language of the arch-fiend:—

"That is to me of sorrow the greatest that Adam, who wrought of earth, shall possess my strong seat: that it shall be him in delight, while we endure this torment, misery in hell. Oh that I had the power of my hands, but round me lie iron bonds I am powerless! Here is a vast fire, above, and underneath. Never did I see a loathier landskip; the flame abateth not, here over hell. My feet are bound, my hands manacled, so that I cannot with these limbons escape!"

We are reminded of John Milton, and his *Paradise Lost*, which was published only a few years before the paraphrase of Cædmon had a second time been brought to the eyes of the world.

The limits of this paper will only admit of reference to two more writers in the period of original English. Thus we shall by no means exhaust the fruit of the literary labor of the age, because a very large portion was committed to the Latin language which it is not our province to consider. Latin was considered stable, and English was not used upon the continent. Whoever, therefore, wrote for a wide circle, or for other generations, was led to use the Latin language.

Literature in this period reached the highest point in the days of Alfred the Great. He was an author of merit who united to deep patriotism a strong love for the early national poetry. He learned Latin late in life in order that he might bring the works of classic authors within the reach of his people.

Among his translations are the historical works of the venerable Bede, some moral and religious treatises, and the Psalms of David. He was engaged upon the last when he died in 901. In a preface to one of his works, King Alfred says: "*When I thought how the learning of the Latin language before this was decayed through the English people, though many could read English writing, then I began, among other divers and manifold affairs of this kingdom, to translate into English the book which is named in Latin Pastoralis, and in English Herdsman's Book, sometimes word for word, so*

times meaning for meaning, as I learned it of Plegmund my archbishop, and of Asser my bishop, and of Grimbold my presbyter, and of John my presbyter. After I had thus learnt it so that I understood it as well as my understanding could allow me, I translated it into English, and I will send one copy to each bishop's see in my kingdom."

Notice that in speaking of his language and people, Alfred always calls them English—never Anglo-Saxon. The latter term appears first in Asser's biography of Alfred, written about 910, and first published in 1574. The term *Angul-Saxonum* is not used to express the union of Angles and Saxons, but to distinguish the Saxons of England from those of the continent.

The Saxon, Anglo-Saxon, or National Chronicle, which relates the history of Britain from Cæsar's invasion to the year 1154, belongs to the period of original English. The student may be in danger of deriving confused impressions of its importance from the differing opinions which learned men have expressed of its value. Mr. Marsh apparently underrates it, calling it "a dry chronological record, noting in the same lifeless tone important and trifling events, without the slightest tinge of dramatic color, of criticism in weighing evidence of judgment in the selection of facts narrated." Mr. Thomas Arnold considers it by far the most important prose work that has come down to us from the period, and Henry Morley gives it "the first place among authorities for early English history."

The National Chronicle is more full in its record of events after the year 853. It exists in several manuscripts, and it is probable that one writer transcribed and continued the narrative of his predecessor. Thus they not only recorded facts, but exhibited the gradual breaking up of the original form of the language in a most interesting manner. The earliest manuscript ends with the year 891. It is not all prose, but the writer incorporates occasional verse, as under date of 937 when he allows his feelings to break out in a rhythmical account of the "Battle of Brunanburh." This has been called the "Waterloo Ode" of the tenth century, in reference to its record of the most complete and bloody victory that King Athelstane gained over the combined

forces of the Danes, Welsh and Scots. This poem is available for modern readers in a version to be found in "Freeman's Early English History for Children," published by MacMillan & Co., London. This song is attractive, apart from its historic and romantic interest, on account of the expressive words it contains. Among these are "ring-giver," "linden Shields," "Gods-candle," "trysting-place," "battlestead," "war-hawk," "that grey deer the wolf," in the last of which we find an explanation of Shakspeare's line, "mice and rats and such small deer," "deer" meaning "beast," and being the "thier" of the Germans.

Let the student of this period turn to the splendid pages of Scott's *Ivanhoe*, and he will have spread before his enraptured view the old English feasting-halls, the pomp and picturesqueness of chivalry, thrilling pictures of life in its light and dark aspects, and he will mark, as some one has said, the tendency to fall into habits of indolence that inhered in the emigrants from the plains of Holstein, and the barren forests of Hanover, which all the stirring scenes of this warlike era could hardly countervail. Thus the pen of the master may cast a bright light upon the past which will scatter its mists, and bring to our view the real life of the early ages in our fore-fathers' homes. Thus the study of ancient letters will be enlivened by the realistic charms of the historical novel, the true English spirit implanted in our nature, and our minds will be expanded as this literature of power finds a welcome to our understandings and to our hearts!

We have now seen the beginnings of our literature. In the National Chronicle we observed some of its more substantial traits; in the epic of Beowulf we marked the breathing forth of the spirit of romance; in the labors of King Alfred we were pointed to its traits of patriotism; in writings of Cædmon that strong religious element which appears to underlie so much of the writing in our language became exultant and almost sublime; while in all of it we have been struck by a clear utterance, an elevated aim, a well-defined purpose, and a strong heart-power, traits which we shall be able to trace all down the centuries as we progress in our fascinating work!

ARTHUR GILMAN.

IN SCHOOL DAYS.

STILL sits the schoolhouse by the road,
A ragged beggar sunning ;
Around it still the sumachs grow,
And blackberry vines are running.

Within, the master's desk is seen,
Deep scarred by raps official ;
The warping floor, the battered seats,
The jack-knife's carved initial—

The charcoal frescoes on its walls,
Its door's worn sill, betraying
The feet that, creeping slow to school,
Went storming out to playing !

Long years ago a winter's sun
Shone over it at setting ;
Lit up its western window panes,
And low eaves' icy fretting.

It touched the tangled golden curls,
And brown eyes full of grieving,
Of one who still her steps delayed
When all the school were leaving.

For near her stood the little boy
Her childish favor singled,
His cap pulled low upon a face
Where pride and shame were mingled.

Pushing with restless feet the snow
To right and left he lingered,
As restlessly her tiny hands
The blue-checked apron fingered.

He saw her lift her eyes ; he felt
The soft hand's light caressing,
And heard the trembling of her voice,
As if a fault confessing.

“ I'm sorry that I spelt the word ;
I hate to go above you,
Because ”—the brown eyes lower fell—
“ Because, you see, I love you ! ”

Still memory to a gray-haired man
That sweet child-face is showing :
Dear girl ! the grasses on her grave
Have forty years been growing !

He lives to learn, in life's hard school,
How few who pass above him
Lament their triumph and his loss
Like her—because they love him.

J. G. WHITTIER.

VISIBLE SPEECH.

SPEECH is thought that can be heard; writing is speech that can be seen. As the mind, once accustomed to a process, fails to recognize the steps which compose it, writing becomes, to those who read it with facility, visible thought. Thought is rendered visible also by another process called hieroglyphic, which attempts to delineate thoughts by forms which suggest the idea without regard to the vocal sounds used to convey it to the ear.

It is singular that these two modes—the direct or ideographic, and the indirect or phonographic—tend to exchange their natures. Whether or not we think in words, it is certain that words greatly influence our thoughts, so that the pictures or signs of hieroglyphic writing follow the order of spoken sentences, and gradually come to represent not ideas, but words. The language of deaf-mutes exhibits a similar phenomenon. After they have learned to read and write our ordinary characters, their sign-language becomes so conventionalized that their signs to some degree represent words; and we have the strange fact of sound affecting the mode of communication of those to whom sound is an unconceivable thing. On the other hand, we find that in alphabetic writing sound is lost sight of to some extent. Sentences are written which would never be spoken, and can scarcely be read; distinctions are made where none exist in vocal speech, and old distinctions are kept up in writing for centuries after they have ceased to exist in sound.

Thus ideography becomes phonography, and phonography becomes ideography, or rather both approach a *middle form*—logography as it may be called, in which

words, but not their component sounds, are expressed by separate signs.

The tendency to lose sight of sounds makes us indifferent to the perfection or imperfection of our system of sound-writing, and, like everything else which is neglected, the system is very bad.

The Saxon race is very indifferent to sound, and most occupied with thought ; hence, as it has the disadvantage of a mixed language and a writing system, combining heterogeneous elements put together by unlearned hands, it possesses to-day, although the most intelligent of the races, the worst system of alphabetic writing in the world.

Every foreigner (except Frenchmen, who are almost as badly off,) is surprised to learn that we spend so much of our school-life in learning to spell. "Why, after learning the sounds of the letters, don't you just put them together into words?" My friend, the letters haven't any particular sounds, and the sounds haven't any particular letters. We learn to distinguish the letters by names, which do not sound as the letters ever do ; then we learn all the words, chanting the names first as a sort of invocation to Fortuna to help us hit the right sound. We have some help from analogy, but in many cases as much hindrance—as in the words *though, through, thought, tough*.

As the English race has sinned most in the matter of bad spelling and an incomplete alphabet, so it ought to take the lead in restoring the science of alphabetics to a form which shall be perfectly and completely phonographic.

It is true that the thought is the important thing, and the sound but its interpreter ; yet it needs no argument to prove that the sound has a value of itself, and must not be neglected. Any system of writing professedly based on sound which does not represent sound fully, precisely, unmistakably, philosophically, is one of which, in the present state of science, we ought to be ashamed.

One enormous piece of sophistry has been mistaken by many for an argument in opposition to the reformation of our spelling, viz.: the assertion that the spelling by sound would obscure the history of words. Suppose, Archdeacon Trench, you wished to trace the history of the development

of the form of ships; what a help it would be if all the artists from the time of the deluge had conservatively retained the shape of the ark as a type of naval architecture—making arks of the trireme, the junk, and the monitor, for fear of “obscuring the derivation” of them all!

The argument referred to, presented in its most favorable light, is this: letters which have once been pronounced should be retained after they have become silent, in order to point us back to the original, uncorrupted form. Now, we who desire a reform of orthography, do not intend to burn up all the books hitherto printed; all the light which the present spelling can throw on the history of words will still be available. Some of this light however is, to make a novel comparison, of the Will-o'-the-wisp kind, serving merely to lead astray.¹ But allowing, as we do freely, that the silent letters give us much useful information in regard to the origin of words, how much more would we have if we could reproduce the sound of every page of ancient English and hear it spoken as the author spoke it? Then we should know not merely the original form under which the word came into the language, but *every* change it has undergone, with the time when, and the influences under which, each change was made.

But why has this reform,—so salutary, so needful, and labored for by so many,—why has it not succeeded?

Because the projected alphabets have been based for the most part, not on as thorough analysis of all sound, but on the plan of eking out the Roman alphabet with supplementary signs for such additional sounds as can be empirically discovered in our own and the best known foreign tongues. The motive of this plan was a good one, viz.: to make the new alphabet acceptable to the masses and insure its speedy introduction. This experiment has failed. The reform must begin above and work down. The masses see in these new methods of spelling nothing but what a false education has taught them to call “bad spelling.”²

¹ As in the word *could*, where illiterate printers have inserted the *l*, on a supposed analogy with *would* and *should*, the roots *will* and *shall* have an *l* by good right. Let us keep the three letters *oul*, where there is but one sound, they serve such an excellent purpose in pointing out the root *can*!

² The best way to spell “know” with our present alphabet is “no,” but that is bad spelling.

To use the Roman alphabet in any form as a basis of the alphabet of the future, is not only distasteful to the people, but unsatisfactory to the learned, from its arbitrary character, and fatal to the universality of the system, for if one language be taken as the basis it will be unsuitable to all the rest, and, if a compromise be possible, the result will be unacceptable to all.

No, it is time to discard the idea of a new alphabet based on any of the old ones and to found one on the physiological laws of speech, which are the same in every country and in every language. A Chinaman's mouth and an Irishman's mouth contain just the same machinery for producing sound, and any sound made by the one is possible for the other. If you doubt this, recollect that a child of any nationality brought up in this country pronounces every English sound correctly. The only reason why adults cannot learn foreign sounds well is that they have partly lost, by disuse, the command of certain muscles of the mouth.

The classification of the sounds of the voice must be the first step in framing a philosophical alphabet. A great mistake in this respect has been too great reliance on the ear. Authors have tried to describe sounds by the effect on the ear, using metaphorical terms, such as "hard, soft, blunt, sharp, etc.," which are of no use whatever as a guide to producing the sound. Sounds should be classified *by the way they are made*. When we have done this, observing patiently, in others' mouths and in our own with the aid of a looking-glass, *how* sounds are made, we have at the same time the most perfect classification of the sounds as they appear to the ear. When we have constructed an alphabet on the basis of this classification, the pronunciation can never be lost, for every element will be a "word of command," (to use the expression of Mr. A. J. Ellis,) telling us what to do to make the sound.

Mr. A. MELVILLE BELL, of England, a distinguished teacher of elocution and pronunciation, and a successful curer of defects and impediments in speech, has solved the great problem. He has made an analysis of the actual and possible ways in which the vocal organs can act to produce sound, which if not the only possible or the best classification

is at least exhaustive and capable of assigning a place to anything which the voice can utter. Next, following the true method, he has invented a nomenclature which describes any given sound by indicating the organs used in uttering it, and what those organs are to do and how they are to do it. Lastly, he provides a system of notation which combines in one symbol, which is neat and practicable, all the landmarks of the nomenclature, so that every sound has its perfect representative.

This system has been subjected to some wonderful and hitherto unheard of tests. Among those who have tested it, is Mr. Alexander J. Ellis, whose name stands high among those of English scholars and first among those of English phoneticians; to whose able services in this branch Max Müller bears testimony. Mr. Ellis is the author of many works on phonetics and of an alphabet, which he himself hopes to see superseded by Mr. Bell's.

The test was this: Mr. Bell's two sons, who, under the tuition of their father, have become expert in the use of the new system, left the room. During their absence, the inquirers dictated to Mr. Bell any words or sounds they chose, in any language, or in no language, sense or nonsense, with any conceivable dialectic or peculiar pronunciation. Mr. Bell imitated the sounds until the proposer acknowledged them to be correct; he was then able, by the use of his new invention, to write them down with such accuracy that his sons on being recalled pronounced every word exactly as it was first spoken.

We shall give, in our next, a sketch of Mr. Bell's classification, nomenclature and notation; and we have no doubt that our readers will accept the correctness of the title claimed for it—VISIBLE SPEECH.

C. E. SPRAGUE.

A NEW OIL.—A new salad oil has been introduced at Hamburg, and promises to be a great success, many people preferring it to Lucca; while it has the advantage for the consumer of being considerably cheaper. It is pressed from the seeds of the beech-tree, the pods of which fall in abundant quantities in the extensive forests of Holstein and Mecklenburg, and have hitherto only been used for *fattening swine*.

THE EDUCATION OF THE HAND.

LE, with a few unfortunate exceptions, have each hands. We should not mention this fact, were it in the education of youth, only one seems to be considered. Children are told to hold their right hand when cutting their food, and, when the necessary operation is completed, to lay them down and use their forks while eating, still employing the right hand. The only further instructions they receive in regard to the left hand is to keep it clean in common with the right hand, and not to get into the habit of thrusting it into their pockets. They are taught that whenever one hand is required, the preference is to be given to the right. Thus the left hand is, with the large majority of children, a comparatively useless member, employed only to assist the other in all manual operations. Without attempting to inquire into the origin of this senseless custom, it is sufficient for our purpose to say that it has no foundation in the anatomy of the hand, or in any natural peculiarity of the human mind. As well might we teach children to rest their foot on the right foot, to keep the left eye closed, to stop the left ear with cotton, as to teach them to neglect the value of the right hand at the expense of the left. In renouncing this absurdity, would it be necessary to renounce all late existing social conventionalities. The fork is held in the right hand while eating, and the knife in its proper place in the cutting of food. These are small things observed only for conventional reasons. What can there be for neglecting the early and careful education of both hands? We are not speaking of an impossible thing when we say it is impossible to rear a child so that whatever one hand can do the other may do well. We know this has been accomplished in many notable instances, where the disability of the left hand has been rectified in spite of all obstacles arising from bad habits acquired in childhood. We have seen surgeons transfer an instrument from one hand to the other during an operation whenever convenience required it, without the

least awkwardness. We have seen draftsmen using **both** hands in coloring drawings—an immense advantage both **to** rapidity of work and evenness of shading. We have **seen** woodmen chop timber “right or left-handed,” and one **car-**penter who used to hammer or saw with either hand **wi**th equal facility. In all these cases the use of the left hand **in** common with the right gave very much greater efficienc**y**.

SCHOOL APPARATUS.

THE blacksmith, the carpenter, the tailor, the mechanic of whatever calling, is not—so far as accomplishing anything is concerned—any better off for his knowledge, unless he has at the same time suitable tools to work **wi**th. And so it is in teaching; the teacher must have certain school-room apparatus, certain tools to work with, if **he** is to accomplish what is expected of him. Yet how seldom is it that he is provided with the proper instrumentalities for carrying on his work. He may, indeed, “understand all mysteries and all knowledge;” and yet, as a man **under**standing all these but without “charity” is “nothing”—so the teacher understanding all these, but without suitable school-room apparatus, is “nothing,” or the next to nothing.

Time was when it was scarcely dreamed that the teacher required anything in the way of apparatus, as we **now** understand the term. He entered upon his duties **with**out any resources whatever, except a few imperfect and **now** happily obsolete text-books and his own mental **acqui**rements. The raw material of youthful intellect was **gi**ven into his hands to be shaped into a form of beauty and **ex**cellence, and yet the teacher was expected to effect this **wi**thout instrumentalities, without apparatus—to make **br**icks without straw! As well almost might the smith be requ**i**red to forge a chain, or the carpenter build a house, **with**out the proper implements to work with.

It was a long step in the right direction when blackbo**ar**ds were first introduced. It was such an innovation upon **the**

ideas of the educational antediluvians, that in many localities it is not even yet recognized as a necessary adjunct to good teaching; and school-houses in which the blackboard is still wanting are not difficult to find. But the blackboard has been introduced as a general thing into our schools, and wherever there is a live teacher, it is considered a *sine qua non*—an essential to school-room success.

With the introduction of the blackboard has been inaugurated a new system of teaching. The competent, wide-awake, conscientious teacher finds a constant use for the blackboard. Good use can be made of it in imparting instruction in every branch of common-school study. Its uses are so many, and its advantages so manifest, that we cannot stop to discuss them.

Crowding close upon the introduction of the blackboard, came cards for teaching spelling and elementary reading. Close upon these, again, have come outline maps, charts, etc. The custom of providing these things, however, is still more honored in the breach than in the observance. In addition to these, globes, orreries, and so on, are found in many schools, though not in nearly so many as they should be found.

Teaching with apparatus—by means of tangible objects or representations—has come to be almost the sole practice. The smallest children are taken in the *Kinder-Garten* establishments, and taught to perform wonders with blocks, wands, scissors and paper. In schools a little more advanced objects are examined, analyzed, and explained; and in institutions of every grade the old-fashioned system of instruction—learning words without meaning—is passing rapidly away. The result is, that while the rising generation has less of that parrot-like knowledge of *words* which the old system produced, it has a more thorough, useful, and practical knowledge of *things*. “I love the young dogs of this age,” said old Dr. Johnson, on one occasion, “they have more wit and humor and knowledge of life than we had; but then,” added he, “the dogs are not so good scholars.” We think “the young dogs of this age” have, as we said above, a more thorough, useful, and practical knowledge of things, and are at the same time quite as “good scholars” as

the children of the generations past. This is owing alone to our improved methods of instruction.

It is an important part of the duty of those who have charge of our schools to provide them with suitable apparatus. Houses and teachers are indispensable; but good apparatus is scarcely less so. Let our teachers have proper implements to work with—then we may reasonably expect work to be done.

T. J. CHAPMAN.

HEALTH OF SCHOOL CHILDREN.

THE Medical College of Middlesex, Massachusetts, having for a long time considered the influence of public schools on the health of children, authorized the publication of the following facts as the opinions of its members:

1. No child shall be allowed to attend school before the beginning of his sixth year.

2. The duration of daily attendance—including the time given to recess and physical exercises—should not exceed four and a half hours for the primary schools; five and a half for other schools.

3. There should be no study required out of school—unless at high school; and this should not exceed one hour.

4. Recess-time should be devoted to play outside the school-room—unless during stormy weather—and, as this time rightfully belongs to the pupils, they should not be deprived of it except for serious offenses; and those who are not deprived of it, should not be allowed to spend it in study; no child should ever be confined to the school-room during an entire session. The minimum of recess time should be fifteen minutes each session, and in primary schools there should be more than one recess in each session.

5. Physical exercise should be used in school to prevent nervous and muscular fatigue and to relieve monotony, but not as muscular training. It should be practiced by both

teacher and children in every hour not broken by recess, and should be timed by music. In primary schools every half hour should be broken by exercise, recess, or singing.

6. Ventilation should be amply provided for by other means than by open windows, though these should be used in addition to special means during recess and exercise time.

7. Lessons should be scrupulously apportioned to the average capacity of the pupils; and in primary schools the slate should be used more and the book less; and the instruction should be given as much as possible on the principle of "object teaching."

SORROWS OF CHILDHOOD.

THE Rev. T. De Witt Talmage, of Brooklyn, in a recent address, described the sorrows of children:

I deny the universal proposition that childhood is the happiest part of life. What with breaking your best top, and having the boy next to you stick pins into you—under the most favorable circumstances, it is the least comfortable portion of human existence. We do not understand the sorrows or perplexities of childhood—those days of bad colds without the alleviation of pocket-handkerchiefs; the days of examinations when the unhappy youth, perhaps, in awful presence, is told to "Parse the first page of 'Young's Night Thoughts,'" and when prepositions, adjectives, verbs, articles, and conjunctions get into a grand riot worse than the Fourth Ward on election day. Well do I remember the unhappy scene of my childhood's educational experience. It was called *Herod's School-House*, partly because a man of that name lived not far away, and partly because it was "*The Massacre of the Innocents*." We went to school there from eight o'clock in the morning to five o'clock in the afternoon, and a boy got the worth of his money. There was none of your nonsense of blackboards, globes, and philosophical apparatus. It was sober business, and no trifling. There were the wooden desks around the wall, and seats with no backs to them, and there we sat all day with our faces to the wall; and along about four o'clock of a summer's afternoon we would begin to forget *our educational*

advantages, and get drowsy, and then the teacher would come around very slyly and with a big stick bring us instantly back to an appreciation of our educational advantages. And when we learned our A B C's, *we learned them!* I remember the whole process. "What letter is that?" "I d-o-n-'t know." (Cuff.) "What letter is that?" (higher key.) "I d-o-n-'t know." (Cuff, cuff.) (Tremendous applause). I remember all about it. It was a most serious thing under the best circumstances. And one day, too, a most awful circumstance occurred: Word came to the teacher that Joe Smith had actually kissed Mary Brown! Actually kissed her! and that teacher arose in his indignation, and didn't Joe Smith take it! Why shouldn't that teacher be filled like a vial of wrath at such a thing? He had never kissed anybody! Nobody had ever *kissed him!* But it did no good; for fifteen years later, a minister stood within the altar, a bridal trail swept down the aisle, and there, in the presence of the world, *Joe Smith kissed Mary Brown!* None of the sorrows of childhood about that!

SCHOOL-ROOM DISEASES.

DR. R. VIRCHOW, of Berlin, Prussia, has made a careful investigation into the diseases caused by the neglect and ignorance of school officers. He has published an interesting and elaborate paper, at the end of which he sums up the chief causes of school-room diseases as follows:

1. The air of the school-room, the condition of which is dependent on the size of the room, the number of pupils, the heating arrangements, ventilation, dampness of the floor and walls, dust.
2. The light of the school-room, dependent on the location of the building and the room, size of windows, color of the walls, artificial means of lighting a room, (gas, oil).
3. The arrangements for sitting, size and form of chairs and desks, length of time scholars are obliged to sit still in one position.
4. Bodily exercises, especially out-door games, gymnastics, bathing, arrangements for such, manner of superintending them.
5. Mental exercises, extent, manner in which they follow each other, individual measure, length of free time and vacations, etc.
6. Punishments, particularly corporal punishments.
7. Drinking water.
8. Privies.
9. School apparatus, especially text books, (size of print, etc.)

Many of the questions agitated are, of course, more of a pedagogical nature, for example, what may be demanded of a scholar, what text-books are to be used, in what manner the free hours and vacations are to be distributed, etc. But many even of these questions will only be solved correctly if school men and medical men will go hand in hand. Only by thus working harmoniously together, by thus mutually enlightening each other, will the State gain an organ to which may be safely intrusted the solution of the great question of our time, viz., bodily and mental health, and development of future generations.

CONDENSED HISTORY OF STEAM.

ABOUT two hundred and eighty years B.C., Hiero, of Alexandria, formed a toy which exhibited some of the powers of steam, and was moved by its power.

A.D. 450, Anthemius, an architect, arranged several caldrons of water, each covered with the wide bottom of a leather tube, which rose to a narrow top, with pipes extended to the rafters of the adjoining building. A fire was kindled beneath the caldrons, and the house was shaken by the efforts of the steam ascending the tubes. This is the first notice of the power of steam recorded.

In 1543, June 17th, Blasco D. Garoy, tried a steam-boat of 209 tons with tolerable success, at Barcelona, Spain. It consisted of a caldron of boiling water, and a movable wheel on each side of the ship. It was laid aside as impracticable. A present, however, was made to Garoy.

In 1650, the first railroad was constructed at Newcastle-on-Tyne.

The first idea of a steam-engine in England was in the Marquis of Winchester's *History of Inventions*, A.D. 1663.

In 1710, Newcomen made the first steam-engine in England.

In 1718, patents were granted to Savery for the first application of the steam-engine.

In 1764, James Watt made the first perfect steam-engine in England.

In 1736, Jonathan Hulls set forth the idea of steam navigation.

In 1778, Thomas Paine first proposed this application in America.

In 1781, Marquis Jouffroy constructed one in Saone.

In 1785, two Americans published a work on it.

In 1789, William Tymington made a voyage in one on the Forth and Clyde Canal.

In 1802, this experiment was repeated.

In 1782, Ramsey propelled a boat by steam to New York.

In 1783, John Fitch, of Philadelphia, navigated a boat by a steam-engine on the Delaware.

In 1793, Robert Fulton first began to apply his attention to steam.

EDUCATIONAL INTELLIGENCE.

NORTH CAROLINA.—As required by the Act to provide for a system of Public Instruction, ratified April 12th, 1869, the Board of Education, and the Supt. of Public Instruction, proceeded to organize a system of Public Schools throughout the State. The report of the Superintendent, Hon. S. S. Ashley, presented November 1st, 1869, shows what progress has been made. In the six months which the report covers, much has been accomplished, though the work has been for the most part of a preparatory nature. The school law has been circulated; county examiners have been appointed; and a census of children between the ages of six and twenty-one years, has been taken. The whole number of school children in the State as reported, is 330,581, of whom 106,766 are colored. The number of school houses is 1,906; of these 178 are characterized as good, and 685 as bad. The sum of \$165,290.50 has been apportioned among the several counties, being about fifty cents per census child. The pecuniary condition of the State did not allow a larger appropriation

for 1869, but it is hoped that "better times will be met with more liberal devisings." The report contains an account of the colleges, academies, and educational associations of the State, and also, a very interesting special report by Rev. J. W. Hood, which gives a satisfactory view of the educational work among the colored population. Considering the difficulties in his way, the State Superintendent is to be congratulated upon his success, and the progress of school matters generally.

MINNESOTA.—The Tenth Annual Report of the Superintendent of Public Instruction, gives the following statistics: The number of districts is 2,521, of which 144 do not report. The number of children between 5 and 21 years, is 144,414, of whom 74,664 are males, and 69,750 females. The whole number of persons attending school is 102,086—29 per cent. not being in attendance. In 1868 the non-attendance was 37 per cent. of all the children. This decrease of 8 per cent. is peculiarly gratifying, because it shows that the public schools are increasing in usefulness and popular favor. The number of winter schools is 1,793; summer schools, 1,982. The number of male teachers employed during the year, 1,155; number of female teachers, 2,620. The relative increase of the male teachers has been greater than that of the female. The average wages of teachers per month—males, \$34.20; females, \$21.92. The number of school houses erected, 258, at a cost of \$242,039.03. The total school expenditure of the year, \$823,571.82, of which \$360,697.50 was for teachers' wages. In no former report have so many evidences of progress been indicated. An increased school attendance; more months of school taught; teachers of better qualifications called for, and at work; and a continued multiplication of neat and well-furnished school houses, constitute the best possible evidences of improvement, and show that Minnesota is making good progress. The three State Normal Schools are in a flourishing condition, and are exerting a powerful influence throughout the State.

OHIO.—The State Superintendent reports an increased educational activity in the State during the past year. The

proportion of children growing up in entire ignorance of the elements of school education has greatly diminished. The number of school officers in the State is 39,901; the number of school-houses, 11,404; the cost of buildings erected in 1869, \$1,874,118; the total value of school-houses and grounds, \$12,462,700. The number of teachers employed, 21,626—12,455 being ladies, and 9,171 gentlemen. The average wages of teachers—males, \$55 63; females, \$33 26. The number of districts in which teachers “boarded round,” 2,025—a decrease of 243; so this number becomes “fine by degrees and beautifully less.” The whole number of schools is 11,714, of which 198 are high schools. The decrease of 69 in the total number of schools indicates a healthful tendency towards a much needed consolidation and thorough grading of the schools of the State. The Report contains many valuable suggestions, and abounds in statistics well arranged and unusually full and complete.

CURRENT PUBLICATIONS.

THE latest work on Elocution¹ is what it professes to be, “a discussion and delineation of the subject of Elocution.” The “Introductory chapters” contain both an able defense of the utility of the art of Elocution, and incitements to the study of it in our schools and colleges; they also call attention to its uses, influences, and effects; and defend the position taken by the author, maintaining the propriety of greater attention being paid to Elocution as one of the most important branches of education, by placing before us as special exemplars of its usefulness and excellence, the philosopher Socrates, and our Saviour, Jesus Christ.

The treatise proper is divided into two parts. The first exhibits and explains “The Sources of Power in Delivery;” the second, “The Elements of Power in Delivery.” By

¹ Elocution: The Sources and Elements of its Power. By J. H. McIlvaine. 8vo. pp. 406. New York: Charles Scribner & Co.

this arrangement the student is placed before the audience **first**, and taught how to speak afterwards. This is objectionable and might with advantage be reversed. In this case the definitions of articulation, accent, pronunciation, etc., would precede those of power, feeling, earnestness, consciousness, attention and sympathy, mastery of the subject, vitality and self-control. This, it is contended, would be a more natural order of arrangement, for, it is manifest, that a pupil ought to acquire a knowledge of letters, words, and tones, before aiming at a mastery of subjects, and the proper methods of exhibiting that "mastery" to a public audience.

The principal error of the book is its discursiveness. It treats often of matters not strictly pertaining to the business in hand. In some cases Prof. McIlvaine, like a too willing witness, proves too much. The following extract from page 80, under the heading of "The Sources of Power—Feeling"—is given to substantiate this:—

"§41. The fourth and last means of exciting the requisite feeling is the formation of a right moral character.

1. *Virtue is not essential to all forms and degrees of eloquence.*
2. *But virtue is essential to the highest eloquence on moral and religious subjects and occasions.*
3. *The feeling which is requisite to the preaching of the gospel with power, is to be sought in prayer for the influences of the Holy Spirit."*

Of these it may be said that comment No. 1, stultifies the whole section. No. 2 must consequently apply to matter rather than manner; and No. 3, though excellent advice, is out of place in a work destined for classes in schools and colleges. These comments by fair deductions from the text would read thus:—

1. Play actors and lawyers are not indebted to virtue for their eloquence.
2. Clergymen are.
3. Excellence in pulpit oratory is to be obtained by prayer, etc., in which case Prof. McIlvaine's work is unnecessary. With the remembrances before us of Sheridan, Clay, Webster, the elder Kean and the elder Booth, with sorrow

we declare our belief, that, if moral character and toddy were to present lists of candidates, of the 19th century, to contend for the prize in Elocution, the numbers and oratorical merits of the partizans of the latter would succeed in obtaining it.

“ ’Tis true, ’tis pity!—Pity ’tis, ’tis true.”

No one disputes the excellence of laws urging the formation of right moral characters. It is good to be honest, but with Dr. Caius we ask—“What shall the honest man do in my closet?” Has moral character anything to do with the proper delivery of an oration? It is submitted that in comment No. 1, Professor McIlvaine has himself answered this question in the negative.

Composition in prose or poetry is first cousin to Elocution, and Butler tells us in *Hudibras*—

“That all a rhetorician’s rules
Teach nothing but to name his tools.”

If this be the case with composition, how is it as regards Elocution, which is far more subtle and etherial? The wild woods have their orators. Many an Indian Demosthenes has moved his countrymen to pity or revenge. Where did they learn Elocution? They had no written rules, not even a written language in many eminent instances. It is true with us, who lead more artificial lives, rules and mathematical education are the orders of the day. But it seems cruel, if not impossible, to bind “the dainty Ariel” with chains. It is submitted that intense study and practise are requisite to form both poets and orators, but it is questioned whether the “stars” of either are made by rules. Rules would produce similarity, whereas great artists commonly differ. Booth and Fechter present two varying portraitures of Hamlet, yet each is followed by thousands, if not tens of thousands of partisans. But if we must have laws for perfecting us in Elocution, we demand that they shall be few in number, and not needlessly intricate. We complain that many of the rules in Prof. McIlvaine’s work are painfully precise—giving these in corroboration:

From page 208, on "Articulation":

(1.) The tonics should be carefully rendered with the precise distinctions between those that are most nearly alike.

(2.) The subtonics should be formed with as full a vocality as can be given them.

(3.) The atonics, with no vocality at all, *i. e.*, with the non-vocalized or whispering breath.

(4.) The hard, soft, or feeble checks must be carefully formed, with the exact position and action of the organs, with the precise degree of contact required by each class, so that the vocal or whispering breath may be perfectly stopped off, or partially, or very slightly checked.

(5.) The nasals and sub-nasals require to be practised on with special reference to the resonance of the voice in the nasal cavities, and to the different resonance in the two classes, as being in the former class along the whole line of these cavities, and in the latter confined to that portion of them where they open into the mouth.

It is submitted that these two latter instructions will be somewhat difficult for students to follow; boys reading them would be apt to say an ounce of practise is worth a pound of theory. It is admitted that the three rules given first are simple and useful.

Or, take the chapter on "The Vocal Organism," page 181, which is a mine of anatomical profundity. Minute descriptions are given in it of the diaphragm, the lungs, the bronchial tubes, the trachea, the larynx, the vocal chords, and the mouth. Even the "ear" is described as one of the principal vocal organs. Shakespeare tells us in "Troilus and Cressida" that "the foot speaks," and consequently we feel thankful that the professor did not take us down to the toe nail. Dickens's barber told the coal-heaver, "he did not shave gentlemen in that business—he drew the line at bakers." In vocal organization we draw the line at the "ear." Far be it from us to assert that the definitions given in this chapter are not anatomically correct. Our question is, are they necessary? It is not believed that when Demosthenes put the pebbles into his mouth he concerned himself much about the names and situations of the organs he meant to barricade.

Under "Pronunciation" may be recognized the inevitable long lists of words, and occasionally detected traces of the same kind of extra knowledge, against which a protest has been entered. The following selection on the nasals *m*, *n*, *ng*, *nk*, page 275, is quoted in exemplification.

"In all these sounds except *nk* there is a perfectly free escape of the vocalized breath through the nostrils. Hence their vocality is nearly equal to that of the tonics themselves, and, with the above exception, they are capable of performing all the functions of tonics in the formation of syllables. This capacity is much more fully exhibited in some other languages than it is in English. In that interesting family of African tongues, called the Kaffir or Nilotic, which are spoken by all the African tribes south of the Mountains of the Moon, these nasals form syllables by themselves quite as frequently as the tonics. Thus, in the Bakéle and Mpongéve dialects, *mpáka*, *mpága*, *gift*—*ntóthi*, *ntóno*, *breast*—*ngúba*, *ngúwa*, *shield*. This is also the case in some islands of the Pacific."

Here and elsewhere there is too much "Africa and the Islands of the Pacific" for a work of this nature, although such information might, in one sense, be serviceable; for, if the natives of Bakéle and Mpongéve want nasals, we can with advantage export a few occasionally from our schools in the New England States.

Of course half the teachers in the Union can find faults in this chapter on Pronunciation, and very probably will. Professor McIlvaine may take comfort in the thought that the same would have occurred if the archangel Michael had written it. The fact is, correct pronunciation cannot be accurately and exactly expressed by letters having different sounds. The public would deny that "psalm" is pronounced "sam;" and if "cat" in polite circles is twisted into "cyat," a retreat upon "puss" is desirable.

No reflections can justly be made, except pleasant ones, on the succeeding chapters of part second—they all contain well-arranged and well-considered instructions. Those on the Qualities and Powers of the Voice are more elaborate than those on Emphasis and Gesture. As to the first part of the work, it is all commendable. We have read it with

pleasure and profit, and have no hesitation in asserting that the close study of it will amply repay any youth who desires to train himself for the bar, the bench, the pulpit, or the platform.

CARL GUTZKOW, one of the most prominent among German writers, has just published a novel under the title "The Sons of Pestalozzi," which, according to the unanimous verdict of the German press, ranks among the most remarkable works of fiction lately published in that country. While the narrative is of the most thrilling interest, the author has interwoven with it a review of all EDUCATIONAL systems from Jean Jacques Rousseau down to the present time. The failure or success of these systems, their strong and weak points, their fallacies or promises for the future, are presented in such a manner as to form the dramatic development of the very events on which the narrative is based. The plot and its gradual complication keep us in breathless suspense from the first to the last. The principal persons engage our deepest sympathy—we feel, hope, and despond with them. We see the hand of Fate hanging over each, and fear from moment to moment an awful catastrophe. And yet we may consider the whole narrative as a mere frame, containing a faithful picture of the whole social, religious, and intellectual life of Germany in its latest phases. But the key-note of the whole is education—and, in particular, that education which is the beginning and end of PRUSSIA'S system, and the secret of her greatness. The author has lifted the veil by which many points in this remarkable system are still covered, and allows us to look into all the secret springs and machinery at work. It is the first attempt ever made to embody these difficult subjects in the form of a novel deserving that name, and it is unquestionable that the author has achieved a signal success. It is doubtful whether we feel a stronger interest in the narrative itself, or in the treasures of knowledge and information which it imparts.

We have arranged to present this admirable work to our readers in monthly instalments. One of the first German scholars in this country has engaged to translate it for the

AMERICAN EDUCATIONAL MONTHLY. The first part we hope to give at an early day. We are assured that our plan will meet with general approbation.

MESSRS. ELDREDGE & BROTHER, Philadelphia, have published a very handsome volume, entitled "A Manual of Composition and Rhetoric: a Text-Book for Schools and Colleges." The author is JOHN S. HART, LL.D. We have no doubt of the success of the work, and shall hope to discuss its merits in a future number. The book contains 380 pages. Price \$1 50.

THE STUDENTS' MYTHOLOGY: a Compendium of Greek, Roman, Egyptian, Assyrian, Persian, Hindoo, Chinese, Tibetan, Scandinavian, Celtic, Aztec, and Peruvian Mythologies, arranged for the Use of Schools, by C. A. WHITE, has been published by W. J. WIDDLETON, New York. 315 pages. Price \$1 25.

MESSRS. DENNIS, BROTHERS & THORNE, Auburn, N.Y., send us a fair sample of book-making, entitled, "Day by Day: a Compilation from the Writings of Ancient and Modern Friends," by WILLIAM HENRY CHASE.

MESSRS. IVISON, BLAKEMAN, TAYLOR & Co. add to Robinson's Mathematical Series, "First Lessons in Mental and Written Arithmetic on the Objective Method." Edited by SAMUEL D. BARR. 180 pages. Price 40 cents.

MESSRS. HARPER & BROTHERS have just published "Recollections of Eton, by An Etonian," with numerous Illustrations, by SYDNEY P. HALL. Paper, 126 pages, price 50 cents. Also, "The Genial Showman, being Reminiscences of the Life of Artemus Ward." By EDWARD P. HINGSTON. Paper. Illustrated. 155 pages, price 75 cents. And, "Veronica: a Novel." Paper. 175 pages, price 50 cents.

A schoolboy, being asked by his teacher how he should flog him, replied, "If you please, sir, I should like to have it on the Italian system of penmanship, the heavy strokes upwards and the down ones light."

MISCELLANEA.

EV. PROFESSOR ANSON J. UPSON, of Hamilton College, is to become the successor of Dr. Sprague, at the Second Presbyterian Church, Albany.

PROF. ALBRIGHT, late of the Ohio Wesleyan Female College, Delaware, becomes president of Lewis University, Ssgow, Mo. Rev. D. A. McCready, late president, has been transferred to Pittsburg Conference.

MISS ELIZABETH ANN SWARTOUT, known widely as the order of the Elmwood Seminary, at Glen's Falls, N. Y., died lately from starvation, in a Michigan insane asylum. Her application to study was the cause of her insanity, and she declined to take any food.

YALE COLLEGE has raised the salaries of tutors to \$1,500, of professors to \$3,000 a year.

BOSTON expended \$1,600,993.53 on her public schools last year.

A TURKISH law school has been opened by the Grand Vizier with a speech, in which he declared that a new era had dawned for Turkey, and that the old practice of judging according to the Koran had to give way before modern ideas, and that a new civil code would in future govern the realm.

ALL the Freshmen class at Amherst College this year were conditioned on spelling. Forty-eight out of the eighty-five applications at West Point were rejected because they could not spell correctly.

ONES says he is about sick of seeing the improbable paragraph to the effect that eighty-three West Point applicants were rejected "because they could not spell correctly." He asks that any average boy of the period could spell "correctly" if he were only careful to put two r's in it.

A GIRL in one of the Boston public schools applied to her teacher for leave to be absent half a day, on the plea that she had company at home. The teacher referred her to the printed list of reasons that the school committee think sufficient to justify absence, and asked her if her case came under any of them. She naively replied that it might come under the head of "domestic affliction."

AN English nobleman once sent his stupid son to Rowland Hill, in order that he might be educated, accompanied by a note, in which the father said of his hopeful son: "I am confident that he has talents, but they are hidden under a napkin." The eccentric but shrewd divine kept the youth a few weeks under his care, but then sent him back to his father with the following laconic message: "I have shaken the napkin at all corners, and find nothing in it."

FRED. DOUGLAS once said that you could no more silence a brawler by answering him than you could get the ding out of a brass kettle by beating it.

THE secrets of chemistry were well known in ancient times, for Queen Dido laid off the city of Carthage with an ox(h)ide.

BEAUTIFUL ANSWERS.—A pupil of the Abbe Sicord gave the following extraordinary answers:—"What is gratitude?" "Gratitude is the memory of the heart." "What is hope?" "Hope is the blossom of happiness." "What is the difference between hope and desire?" "Desire is a tree in leaf, hope is a tree in flower, and enjoyment is a tree in fruit."

THE fireside is a school of infinite importance; it is important because it is universal, and because the education it bestows being woven in with the woof of childhood gives form and color to the whole texture of life.

A TEACHER ANSWERED.—I was teaching in a quiet country village. The second morning of the session I found leisure to note my surroundings, and among the scanty furniture I espied a three-legged stool. "Is that the dunce-block?" I said to a little girl of five. The dark eyes sparkled, the curls nodded assent, and the lips rippled out, "I guess so; the teachers always sit on that!" The stool was unoccupied that term.



ERRATA.—Article "English Literature," page 403, second line, for "philosophy," read *philology*; twenty-sixth line, for "Leibritz," read *Leibnitz*; page 407, for "Beourelf," read *Beowulf*; for "mendelark," thirteenth line, read *men bark*; twenty-sixth line, for "Erke," read *Eske*. Our word-
proof-reader has not had a summer vacation!

SCIENTIFIC.

THE science of chemistry, although belonging to the exact sciences, is perhaps the most unsteady of all. Its very principles seem almost always in a feverish state of transition. What was true yesterday is to-day considered as a fable; and to-day's truth will be scorned to-morrow. For sometime the theory of the "Nascent State" played a great role in this science. We understand by it the hypothesis that a body in the moment it leaves a certain combination has qualities different from those in its ordinary state. This whole hypothesis has recently been thoroughly refuted by Delille in the "Comptes Rendus." Our hand-books of chemistry will require another overhauling.

THE astronomers of the Greenwich Observatory, England, have been measuring the heat of the stars. Arcturus and Vega have been the ones especially dealt with. It is found that the former, which shines with a ruddy, yellow light, sends about twice the heat of the latter, whose gleam is like the gleam of polished steel, while the quantity is of course exceedingly minute in either case. The heat received from Arcturus, for example, is sensibly the same as that from the face of a three-inch iron cube full of boiling water at a distance of 383 yards.

EARTH houses, or rather dwellings in the earth, are of very ancient origin. They exist in many northern countries. Numbers of them have been discovered at different periods in Ireland, England, and Scotland. They were used as places of safety or refuge, to which the early inhabitants could retire, carrying with them their provisions and effects. In the Irish language they were called *Caisttallamh*; in Icelandic *Jardus*—meaning in both tongues earth houses. Behold the epitome of architectural history—from Cave to Castle, from Excavation to *Building*.

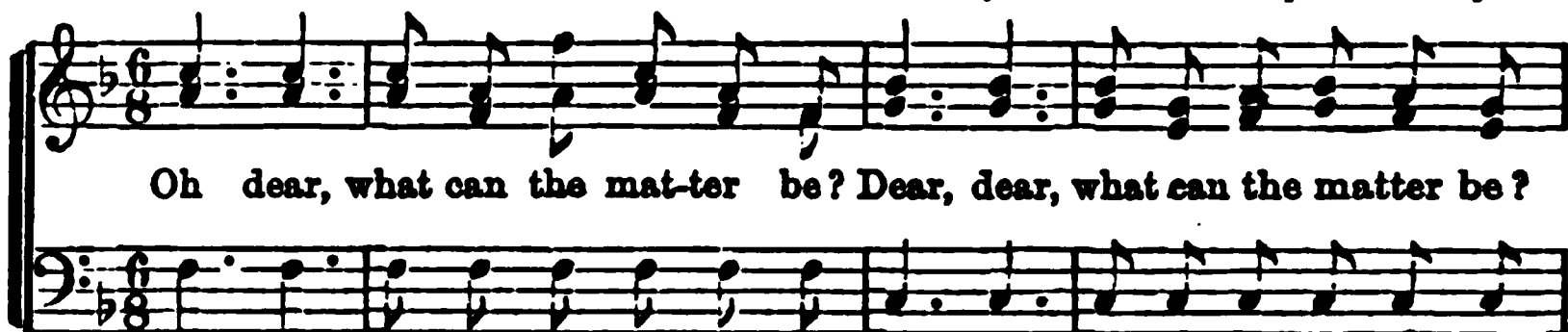
THE hardness of metals may now be ascertained by aid of an instrument invented by a French engineer. It consists of a drill, turned by a machine of a certain uniform strength. The instrument indicates the number of revolutions made by the drill. From this compared with the length of bore-hole produced, the hardness of the metal is estimated. It is said that a great proportion of the rails now employed in France are tested by this instrument.

AT a recent meeting of the Academy of Sciences, M. Prillieux explained that icicles existed in the interior of all frozen plants. These icicles form small columns, perpendicular to the surface, and often penetrating the epidermis. The ice is formed from liquids derived from the cells. The cells, however, remain intact; so that there is no destruction.

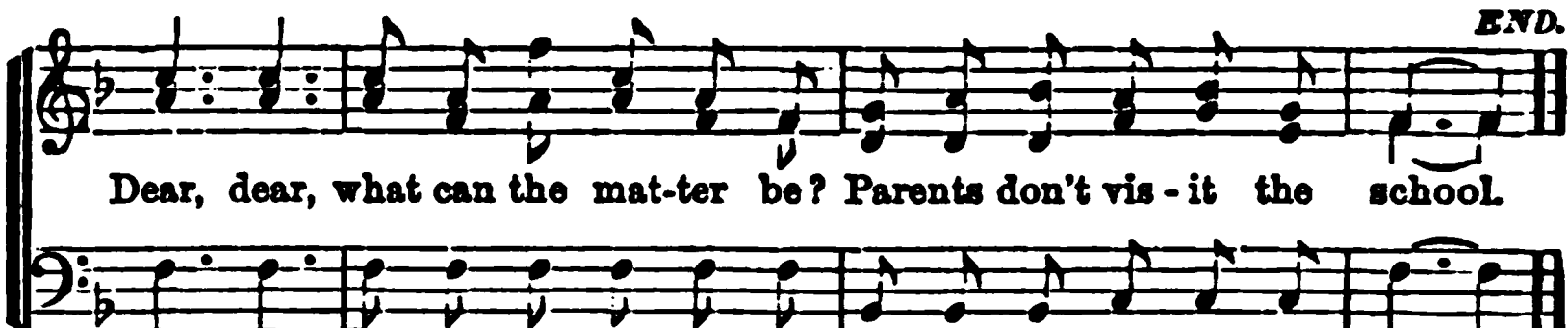
WHY DON'T PARENTS VISIT THE SCHOOL?

From "THE DIADEM OF SCHOOL SONGS," by Professor WILLIAM TILLINGHAST.

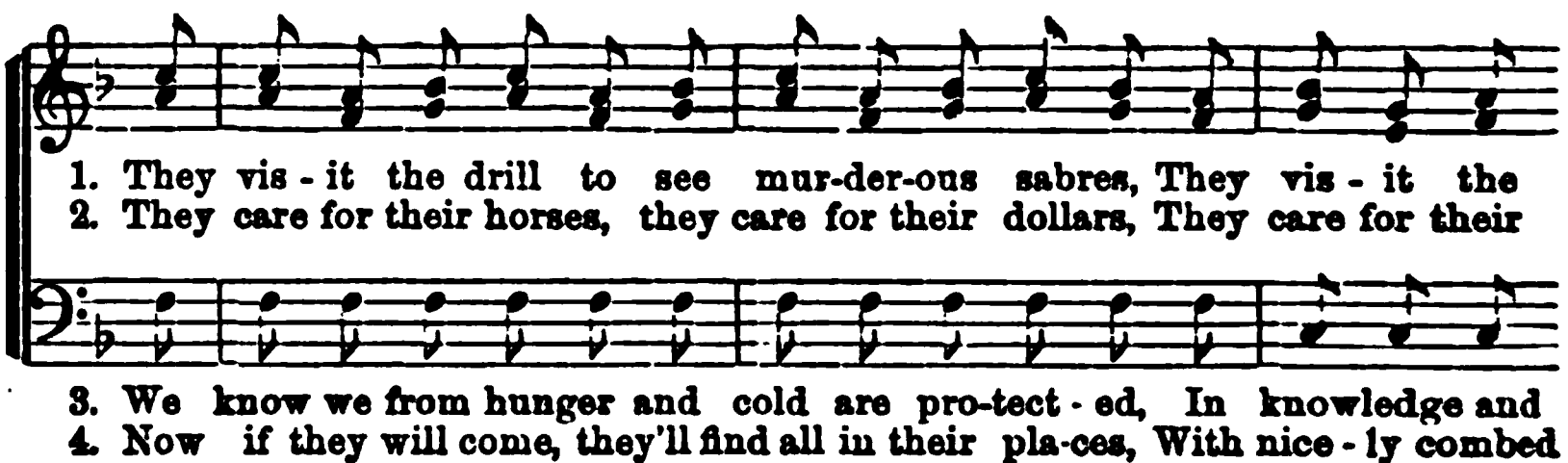
Words by N. A. GRAY. Popular Melody.



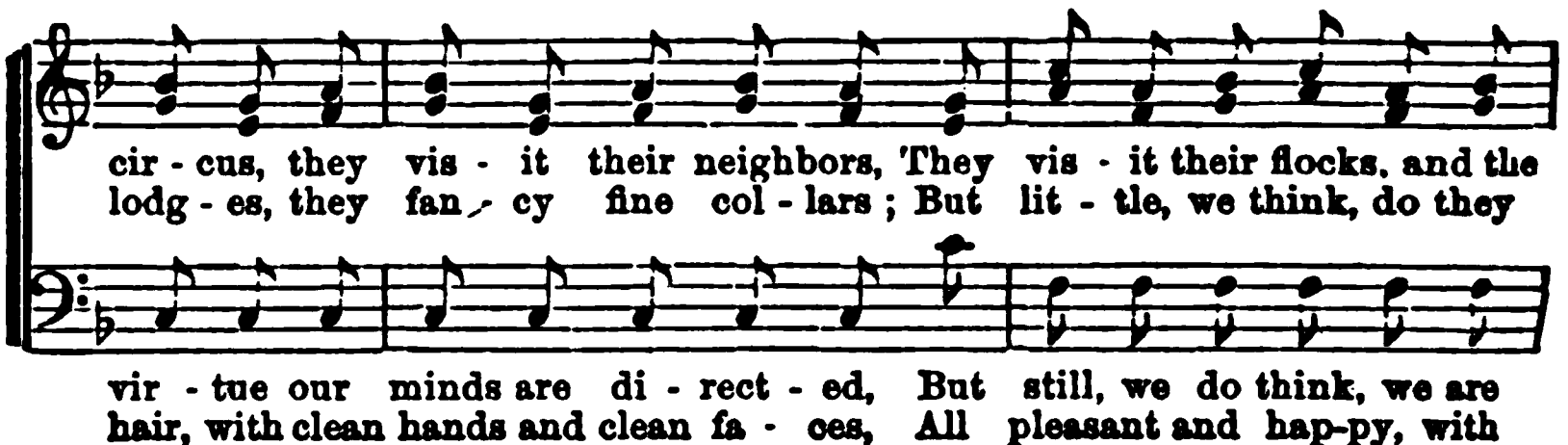
Oh dear, what can the mat-ter be? Dear, dear, what can the matter be?



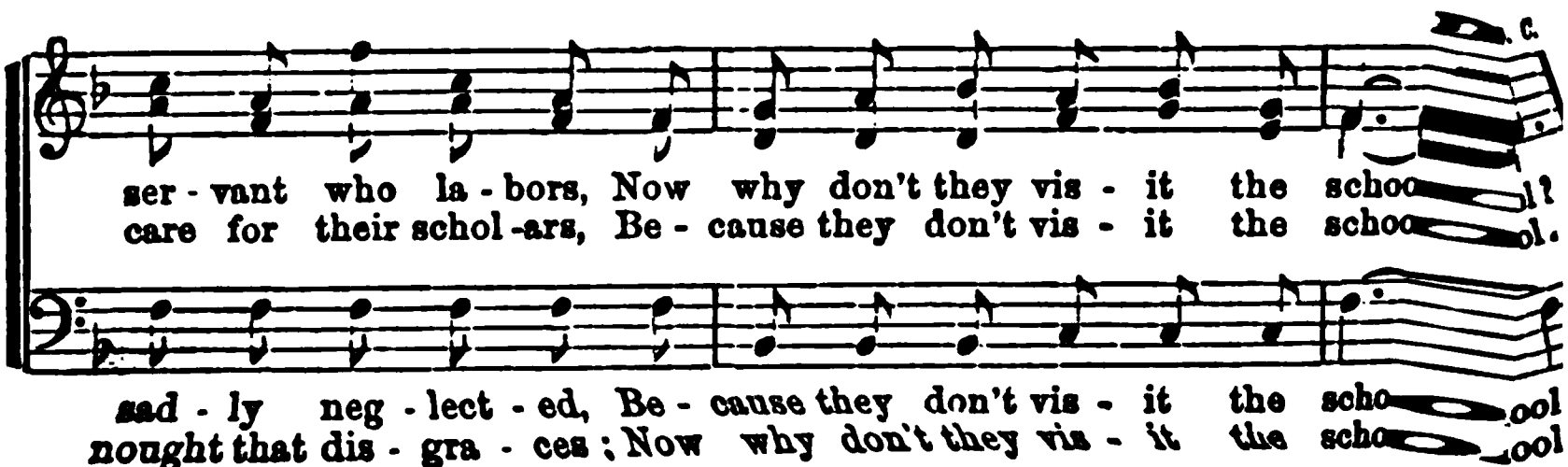
Dear, dear, what can the mat-ter be? Parents don't vis-it the school.



1. They vis-it the drill to see mur-der-ous sabres, They vis-it the
2. They care for their horses, they care for their dollars, They care for their
3. We know we from hunger and cold are pro-ect-ed, In knowledge and
4. Now if they will come, they'll find all in their pla-ces, With nice-ly combed



cir-cus, they vis-it their neighbors, 'They vis-it their flocks, and the
lodg-es, they fan-cy fine col-lars; But lit-tle, we think, do they
vir-tue our minds are di-rect-ed, But still, we do think, we are
hair, with clean hands and clean fa-ces, All pleasant and hap-py, with



ser-vant who la-bors, Now why don't they vis-it the schoo-ol?
care for their schol-ars, Be-cause they don't vis-it the schoo-ol.
sad-ly neg-lect-ed, Be-cause they don't vis-it the schoo-ol
nought that dis-gra-ces; Now why don't they vis-it the schoo-ol

AMERICAN EDUCATIONAL MONTHLY.

NOVEMBER, 1870.

AFTER THE BIBLE IS EXCLUDED—WHAT?

A MIDST all the violent declamation which attended the School and Bible controversy in Cincinnati, did anything surpass the affirmation, incessantly repeated, that if the Bible were excluded, God Almighty himself would be banished from our public schools? There was one reverend gentleman in particular who accented this phrase with Catonian monotony, and with the unction which frequently accompanies profane swearing; but who, with no thought of taking his Maker's name in vain, was not unwilling to parade his *ex-officio* concern for the welfare of Deity. Indeed, it seemed at one time as if, but for this clergyman's frantic endeavors, there would be but small help for the Creator against his creatures. If it was really so, then has the order of the universe seldom hung upon a slighter thread. In other times emperors and popes have stood between God Almighty and like perils to his presence in this place or that; but as the anathemas multiply, the case becomes more desperate, till even an unevangelical preacher is appointed to lead the forlorn hope of Heaven. The pious Alexander I., of Russia, ordered, in the latter years of his reign, that professors of astronomy and geology should teach nothing not strictly in accordance with Genesis. That was his method of keeping God in the schools; and it cannot be denied that it was much more rational than ours.

But his line of defence has long since been penetrated and outflanked, and that other contrivance of his, for maintaining God's share in the government of mankind—the Holy Alliance—we are now seeing the last of at Sadowa and Sedan.

There is no atheism, in fact, so bold as that which proclaims God's inability to take care of himself, and which conditions, so to speak, his integrity upon the preservation of any given book, church, creed, priest, or pope. Now if anything is clear, it is that the Maker of the universe is as prodigal of means and instruments in the world of man as in the world of matter. For the one bud that germinates he furnishes a thousand that are suppressed; and not less sure he has guarded that human progress shall be independent of individual human fortune. Almost every great invention has had a plurality of claimants, often in different parts of the globe. Seven cities believed themselves capable of producing a Homer. Wickliffe and Knox, Huss and Luther, Savonarola and Calvin prove over how wide an area the seeds of Reformation were sown by the hand that always scatters in overplus. History cannot pronounce any or one of them to have been *essential* to the work which they accomplished. Others were ready to take their place when they failed to appear. The "mute, inglorious Milton," and "Cromwell, guiltless of his country's blood," of the count-churchyard, were something more than poetic imagining—they were potential realities.

Suppose, therefore, we give over being startled because the earth revolves, or is older than six thousand years, because the Bible, after having been superseded in Puritan State constitutions, is divorced from State schools, and relegated to the family, where it belongs. The religious element in man's nature, we may be sure, is not going to be eradicated, whatever fate befalls any system of theology, and may be cultivated without book, bell, or candle. Let us leave devotional instruction to those whose business it is to parents and clergymen. The worship of God by improving the faculties which he gave us, by training along with the senses the will, the judgment and conscience—this even a Cincinnati teacher is at liberty to inculcate. Let him do

regard the blasphemy of those who ignorantly assert that **there** is no morality apart from the Bible ; but let him be **deeply** impressed with the fact that intelligence is not a **substitute** for morality nor identical with it, but merely an aid. **The** possession of knowledge indeed sometimes prompts to **crime**, and often, as we all know, facilitates the commission **of it**. It is true, we do not charge the blame of forgery **upon** the writing-master, but can we altogether relieve the **school** of it ?

If the teacher's example be bad, if his life be immoral, all **talk** from him of virtue and right conduct will be far worse **than** useless. If, on the other hand, his character is genuine **and** pure, and his aims elevated, there is no pastor or head **of** Sunday-school that might not envy him his power for **good**. First of all doctrines, to be both directly and **indirectly** enforced, is the love of truth for its own sake—God **knows** no higher service than this. To love truth is to **search** for it incessantly and on all occasions, and is the **foundation** of all sound knowledge. From this passion **spring** the habit of inquiry and the habit of observation, **without** which science can have no followers worthy of the **name**. These in turn beget the scepticism which is the **parent** of invention and reform, and the enemy of dogmatism **and** bigotry. The love of accuracy is, as far as it goes, the **love** of truth, and there can be no thoroughness without one **or** other of these motives. Here already we have the **qualities** best fitted for discipline and learning ; and if any **one** will reflect how customary it is to engraft these by **means** of the rod—by brute force from without instead of by **ennobling** development from within—he will perceive at **once** how sadly the teacher has shirked his responsibilities **and** abused his opportunities. We see him every day **engaged** not in building up character for all time, but in **achieving** this or that recitation, and in preserving order **between** stated hours. From this point of view, I do **not** hesitate to affirm that the system of marks and rank, **of** merits and demerits, is the complement of the rod, **and** means not less an avoidance of duty on the part of the **teacher**.

Next to the love of truth for its own sake, is the love

of learning for its sake, and not as means for the making of money, or winning place and distinction. This is so far from being appreciated, that the demands of education are supposed to be satisfied when the child has availed himself of the facilities of any given neighborhood, or of those permitted by his parents' resources. But the country lad who learns all that can be taught in a school held six weeks in each half year, and the college graduate who has received his degree, are equally at fault if they suppose their education finished. A lesson recited correctly is not 'absolution from further study, and no more is the aggregate of a thousand recitations.' The end of education still remains the perfection of the human soul. While no man attains that, each one may share in the perfectibility of the race, which is infinite. Perhaps from no other source would so much benefit flow to the cause of public instruction in this country, as a correct conception on the part of teachers, and, through them, of scholars, of education in this its highest and most liberalizing sense.

A virtue not surpassed by any other is self-restraint, and this the teacher can implant by doctrine if he sustain it by his example. What, however, is the usual care of masters in this regard; and how will their restraint of themselves compare with that which they exact of their pupils? Let the history of the rod answer. I am aware that unless the foundations of self-denial and control are laid early—almost in the cradle—it will be difficult to lay them in after years and that the teacher's task is the hardest possible. Still, if he has not to do with an age when habits are readily formed it is one amenable to reason and benevolent suggestion; and he will often have one of the finest of human pleasures in the spectacle of the change which he has wrought in the spirit and determination of some wayward or backward youth, who needed an inspiration to be saved to usefulness. By teaching him to subordinate his lower passions to his higher, and to prefer future interests to those which immediately tempt him, religion is as truly advanced as though he were fed on sermons or on extracts from the Bible.

Business men assert, and with evidence, that ninety-six per cent. of their number fail sooner or later to make a

living. There is, therefore, a dreadful waste in our social economy. Men set themselves to do what they were never fitted for, and, in the effort to save themselves from failure, to what must they not resort that is dishonorable and demoralizing? It is proverbial that trade is conducted on principles inconsistent with Christian profession, and it follows that there has somewhere been a miserable lack of moral training—perhaps I should say moral stiffening and bracing which no temptation could overcome. The school is not omnipotent, but I think that its influence in solving this problem might be beneficently felt. Besides its general moral discipline, it will, if it has been properly conducted, have developed the peculiar genius and bent of every child, so that the teacher can advise with tolerable confidence what had best be his future occupation. One thus directed, and previously armed against the vulgar thirst for money-getting, will be likely to remain in the place into which he drops, and to prosper in it. Over-crowded pursuits will be relieved and competition so much diminished that men will no longer be compelled to cheat and to overreach on weekdays, and confess themselves miserable sinners on Sundays; and as this would manifestly improve the quality of our congregations, and would react favorably upon the ministers, I cannot but think the function just ascribed to the teacher also of service to religion, if not in its very exercise religious.

There remains, for men teachers especially, a peculiar missionary field in which few are fully qualified to labor, but which offers the highest rewards for devotion. We hear a great deal, and by no means too often, of the duty which the home owes to the school; but the school has a reciprocal duty to the home, which it only discharges in part when it teaches what lies between the covers of our text-books. There is a duty of the home to itself, which it shirks, and which, I admit, the school cannot wholly assume; and that is a warning from filth and from debasing indulgences, and some sort of instruction in the mysteries of birth and the responsibilities of parentage. If the licentious and irreverent character of the medical student (with the necessary exceptions) were not well known, I

should say that a teacher would profit by having been one, as he certainly would by being a father. But it is only needful that he should understand the physiology of puberty, and the perils which attend a period when the imagination of the purest is excited to unclean thoughts, to enable him to detect the subjects for whom his advice should be ready, and those others, the moral lepers of every mixed company of boys, who are shameless victims of neglect or false training, and whose presence should be carefully guarded against, if it cannot be promptly got rid of. These last are the debauched transmitters of nastiness, of premature knowledge, of dirty language and infamous conceptions, and of literature which it is too indulgent to call simply indecent. Against these pests the worthy father and pious mother have provided nothing. A false modesty restrains them from anticipating the lewd distortions of truth with which their children will inevitably be beguiled, and their memories, if not their habits, forever stained. I repeat: the school can not repair the delinquency of the home in this important office, but it has opportunities denied to parents of discovering evil associations, both in their rise and in their confirmation; and a timely word may save from corruption.

The bearing this has upon religion I leave for those to dispute who hold that marriage is a religious ordinance, or one having the highest sanctions of religion, and that consequently divorces are an abomination in a Christian land. Those who have already agreed with me that it is a religious service to make a man's talent agree with his avocation, will not think less highly of labor bestowed in elevating the sexes in each others' eyes, and in bringing about indissoluble because naturally compatible marriages. It is well to repeat here what was said in the beginning: that knowledge is not virtue itself, but only the handmaid of virtue. This is the lesson of Connecticut statistics—a State having a first-class university as well as the usual network of common schools: in every nine and seven-tenths marriages there is sure to be one divorce. Ohio, which has no university comparable to Yale, and whose common-schools are presumably no better than Connecticut's, has

but one divorce in twenty-four marriages, in a much larger population. There are graduates of common schools who make it their business to procure divorces by observing prescribed forms yet without the knowledge of one or other of the parties,—contrary to the spirit of the law. One of these forms is the due advertisement of the notice to appear; and there are graduates of our common schools who are not above conniving at a cruel fraud by printing these notices on the blank side of a half-printed sheet of some regularly published newspaper, to be afterwards cut out, showing print on both sides, and presented to the court as evidence of having been advertised in the paper in question. Recent statistics in Scotland in regard to illegitimate births show that the counties in which the proportion of these is highest are also those in which the highest proportion of men and women are able to sign their names in writing in the marriage registers. Who will dare, if he can, unveil the statistics of criminal abortion in this country, and show how far it is from being confined to the illiterate of any class?

The wise words of Renan recur to us: "It is said the common school won the day at Sadowa [as again at Sedan]. No! It was German science—the university, which makes the school—German virtue, Protestantism, philosophy: it was Luther, Kant, Fichte, Hegel." *German virtue*—not distinct from American virtue; simple virtue therefore. That it is which is to prepare us if not for our Sadowa, at least against it. If we can foster that in our schools, we need not regret the absence of the Bible. If we foster that, God Almighty will not be banished from them, nor will the teacher's occupation be gone.

P. CHAMITE.

BEES make their honey in the dark, for the reason that by the action of light the pure syrup of honey is crystalized, or *candied*, as the saying is. Were this effect allowed during the process of manufacture, the cells might become sealed up, and the work stopped. The bees are chemists, as well as geometers, by instinct.

ENGLISH LITERATURE.

PART THIRD.

"To study history is to study literature. The biography of a nation embraces all its works."

ROBERT ARIS WILLMOTT.

BROKEN ENGLISH, 1150-1250.

THE period under discussion is said to extend from 1150 to 1250, but it is necessary to be exceedingly guarded in making divisions of this kind. We have already remarked that changes in language and literature have not been sudden, but so gradual that no exact dates can be said to mark them. Still, it is none the less profitable to make such divisions. The traveler at Cape Horn may say that his eastern view is over the Atlantic, and his western over the Pacific, without being called upon to point out the exact line that divides the two oceans. He may speak, too, of the marked difference between them, without being able to demonstrate from a single spot that the one is more tranquil than the other.

So, looking over English literature, we may speak of changes and periods, though no more able to point to exact dividing lines. Nay, more. We must lay down lines of demarcation, though we know the periods have no more definite bounds than the great oceans have. The stormy Atlantic sweeping around the Cape is quieted into the tranquil Pacific. So also in the onward sweep of time one historic and one literary period merges into another, but exactly when, we cannot say.

When William the Norman assumed the government of England in 1066, he found religion and learning in a state of decay, though the Church, which ought to have fostered both, had sound foundations and large endowments. The scholastics were in considerable vigor in France; and it was quite natural that William should introduce his favorites among them to English sees. Thus the spiritual care of his people devolved upon men who were not able to sympathize with the natives of the soil—in many cases they could not

even converse with them. Under the King's fostering care, these ecclesiastics were able to adorn England with such rich and costly edifices as the cathedrals of Canterbury, Rochester, Norwich, and Worcester; but, at the same time, they were restrained from acquiring much civil power.

The succeeding Norman sovereigns were by no means equal to the first, and many evils that appear to have grown up gradually culminated in the reign of Stephen, the last of the line. This reign, in the language of Sir James Mackintosh, "perhaps contains the most perfect condensation of the ills of feudality to be found in history." We cannot dwell upon these here, and need only say that the reign of Stephen was a time of civil and religious oppression, causing turmoil and discord.

About here the period of *Broken English* begins, at the end of Norman rule, when in 1154 the first of the Plantagenets ascended the throne. It ends very near the date of the first meeting of the representatives of the people in something like the House of Commons in 1258. It includes the exciting times when the Crusades, which so thoroughly agitated Europe, affected England; and it is marked by interesting social movements, which, in the times of Edward III., and still more in the reign of Richard II., assumed an importance which we shall have occasion to remark as we proceed.

Henry II., the first Plantagenet, reigned from 1154 to 1189. The reign of Richard I. followed from 1189 to 1199. This sovereign, the celebrated Cœur de Lion (or Lion-hearted), could not speak English, was engaged in the Crusades, or in other foreign wars for almost the whole of his reign, and was only for eight months in the country he ruled, during the ten years of his reign. He was succeeded by John from 1199 to 1216, and by Henry III. from 1216 to 1272. The last mentioned attempted to abolish the Magna Charta, which had been forced from his father, John; but the people frustrated his design, and imprisoned him. This led to the assembling of the commons with the nobles in 1258, when the national rights were again confirmed.

During the reigns of the Normans the Teutonic language of England had been in a state of conflict with the Romanic

language of the conquerors, and by the time the Plantagenets assumed authority the effects were becoming apparent in what Dr. Craik calls the "First Great Revolution in our Language." This was the change from a *synthetic* to an *analytic* form.

By a synthetic language is meant one in which inflections are effected by adding letters or syllables to the root. This is the case with Latin, Greek, and other languages of complicated inflections. It was originally the case with our own speech.

An analytic language, on the other hand, is one in which these terminal distinctions are more or less abandoned; and in which the inflections indicating case, tense, mood, gender, etc., are made by means of particles or auxiliaries. In the process of time English has so changed that nearly one-half of its vocabulary is monosyllabic, and its grammatical relations are almost all expressed analytically. The language is therefore simpler. Take the definite article as an example. Originally it had twenty forms, there being a different one in the masculine, feminine, and neuter of each of five cases. These are now reduced to one. The verbs were very much more complicated.

The changes marking this revolution have been represented as follows:

1. The artificial distinction of gender, and its consequent effect upon declension, was superseded by the natural distinction of sex.

2. The agreement of the adjective with the noun was no longer rigidly preserved.

3. The inflection of nouns, as a system, was virtually at an end, though occasional instances remained.

4. The verbal inflections were reduced in number, and rendered less distinctive.

5. The government of prepositions became irregular and uncertain.

6. Prefixes and suffixes were struck off, shortened or softened. Thus *gehaten* became *y-haten* or *ihote*; *ge-macod*, became *maked*; *ge-clipod*, *y-clept*, and finally *clept*.

It has been asserted that during the period under discussion other languages besides English were experiencing the

change from a synthetic to an analytic state, and whether it be true or not, we find as we study the subject that most European languages have, at some time, felt the influence of the others. Thus the origin of many well-defined changes is difficult to trace. It is not proved that the Norman monarchs of England ever used any other than negative means to make their own speech take the place of English. They gave the force of their example in favor of using French in England, because, forsooth, they could not speak English. Their courtiers and the ecclesiastics did the same thing, for the like reason. Thus, with or without design, two languages were in conflict upon the same ground. The Romanic had all the advantages that its use by the noble conquerors could give it—the Teutonic had actual possession of the soil, was embalmed in the people's literature, and, what is more important, had a strong hold upon the affections of the people themselves. Thus, though English, could not be dispossessed entirely of its position, it was not only possible, but it was to be expected that it should be disintegrated—that its form should be broken up, as we have seen it was. New words were also introduced.

Grimm says, "The Saxon forms soon dropped away because they did not suit the new roots, and the genius of the language from having to deal with the words in a rude state was induced to neglect the inflection of the native ones."

The letter *s* became about this time the sole mark of the plural in English words. It had previously been one among several. This may be one of the signs of the Norman influence, but, however that is, the social and political circumstances of England were much influenced by France, and they had their counterpart in the condition of the language and literature.

English literature was now waning, and the written form of the language probably gave way to the colloquial, which was analytic long before.

Literature was now almost exclusively cultivated in those monastic establishments to which the scholastics loved to resort, and which the Norman monarchs loved to foster. There was in these buildings one apartment appropriated

to the writers and their sometimes very costly manuscripts. It was furnished with chairs, tables and desks. There were inks of various colors, and pens of primitive appearance. In fact all the literary conveniences of the time were grouped in this room, which was called the *Scriptorium*. The name was Latin, and so was much of the writing that was done in it. Such Latin records often took the form of chronicles, like Geoffrey of Monmouth's History of the British Kings, but they hardly belong to English literature.

Let us concentrate our attention upon three productions of the period. The first, written about the year 1200, is entitled *Layamon's Brut*, and is a chronicle of Britain from the arrival of Brutus—to whom the title refers—to the death of Cadwalader in 689. The author, who studied upon the bank of the Severn, at Ernley, says that 'it came to him in mind that he would of England tell the noble deeds. Layamon began his journey wide over the land, and procured the noble books which he took for pattern. He took the English book that Saint Bede made. Another he took in Latin that Saint Albin made, and the fair Austin who brought baptism in hither. The third book he took that a French clerk made, whose name was Wace. Layamon laid down these books and turned the leaves. He beheld them lovingly. May the Lord be merciful to him! Pen he took with fingers, and he wrote a book-skin and the true word set together, and the three books compressed into one.' The compression of these three books resulted in a poem of thirty thousand lines. Among the words used the following are interesting: *Formeste*, foremost; *uncud*, unknown; *i-coren*, chosen; *kine-bern*, child; *hered-men*, courtiers, from hired, a family, or court; and *hwæg*, whey. The last word in its two forms shows the change from the natural arrangement of its two first letters to the present artificial style.

The Ormulum next demands our notice. Dr. Marsh considers it in some respects the most important philological monument of the period. Dr. R. Meadows White, who edited the *Ormulum* in 1852, describes it as "A series of homilies in an imperfect state, composed in metre without alliteration, and, except in a few cases, also without rhyme; the subject of the homilies being supplied by those portions

of the New Testament which were read in the daily service of the church." The author was Orm, or Ormin, "a canon regular of the order of St. Augustine," as he tells us, and he composed the work in English, at the request of brother Walter, for the spiritual improvement of his countrymen.

His plan is to paraphrase the lesson of the daily service, and then to expound it, in doing which he borrows frequently from St. Augustine and Alfric, and occasionally from the venerable Bede. The spelling of this author presents a principle of pronunciation which is very interesting. Pine is written *pin*, and pin is written *pinn*, and thus the consonant is doubled after a short vowel in a way that obtains somewhat at the present time. This habit of spelling gives the *Ormulum* an antique appearance, though the style is simple and easy. Brother Ormin cautions transcribers to follow his spelling exactly—

And tat he looke well that he
 (And that he look well that he),
 An bookstaff write tweis
 (A letter write twice),
 Eywhere then it upo this book
 (Wherever then it upon this book)
 Is written o that wise
 (Is written on that wise),
 For he ne may nought elles
 (For he may not else),
 On English writen right te word
 (In English write right the word).

Searching still in the monkish haunts we find our last specimen of the literature of this period in a prose composition called *The Ancren Riwele*. *Ancren* is a contraction of *Ancrena*, and the title signifies a rule or guide for the nuns or anchoresses. The work is a treatise on the duties of monastic life, originally written in English and subsequently translated into Latin. The work of an ecclesiastic, it contains, as would be expected, a greater number of Latin words than a layman would have used. It exhibits the language in a state of transition. The inflections and conjugations are somewhat simplified, but not entirely ignored. The work is also interesting, as showing that the homogeneity

of the language was beginning to pass away, the infusion of foreign words, indicating the approach of the composite stage of English, which marks what Dr. Craik calls the Second Great Revolution, completed in the fourteenth century.

ARTHUR GILMAN.

VISIBLE SPEECH.

II.

“THE fundamental principle of Visible Speech,” says Mr. Bell, “is that all relations of sound are symbolized by relations of form. Each organ and each mode of organic action concerned in the production or modification of sound has its appropriate symbol, and all sounds of the same nature produced at different parts of the mouth are represented by a single symbol turned in a direction corresponding to the organic position.”

I. CLASSIFICATION.—The *rudimentary*, or *interjectional sounds*, the mere uttering of breath or voice unmodified outside of the throat-passage, have a place in this system, in fact lie at the basis of all the consonant and vowel letters. The common “h” is the only example of this class which we hear in English speech. This system provides for every possible sound, whether known to be an element of speech or not, so that it is perfectly easy for one who understands the system thoroughly to write or read a grunt, a growl, clearing the throat, a shudder, all varieties of breathing, and by the use of consonant symbols, snoring, sneezing, and even a kiss.

Visible Speech classes the regular elements of speech as *consonants*, *glides* and *vowels*. Glides are the transitional sounds, between consonants and vowels, heard in the last element of the diphthongs “I, oy, ow;” what Dr. Rush calls the “vanish.”

We will enter more minutely into the details of the classification of consonants, the most numerous class, as a specimen of the whole. The consonants are divided, according to the

of the mouth where they are formed, into the four general classes following: those produced (*a*) by the *back* of the tongue; (*b*) by the *front* of the tongue; (*c*) by the *point* of tongue; (*d*) by the *lips*. There are four *mixed* classes, produced by the simultaneous action of the back of the tongue and the lips; the front and point of the tongue; the point and front of the tongue; the lips and back of the tongue; the first mentioned in each pair being the more prominent. Thus we have eight points of consonant-formation. At each of these points (exceptions below) the breath may be made to yield sound by friction or percussion in either of four ways; (*f*) by forcing the breath through a lateral aperture; (*g*) by closing the centre and forcing the breath on both sides; (*h*) by a complete stoppage at one of the points and a release through the mouth; (*i*) by a similar stoppage and a release through the nose. The two last are not applicable to the mixed positions. Hence we have in all twenty-four consonants:

$$8 \times 4 - 4 \times 2 = 24$$

Points of contact.] [Modes of formation.] [Mixed positions.] [Closed formations.]

The consonants thus far mentioned are all *whispered* or *voiceless*. They may each be pronounced with *voice*, (*j*) that is, with a murmur in the throat, such as constitutes the difference between *p* and *b*, *s* and *z*. This distinction of voiceless and voiced consonants doubles the number, giving us forty-eight cardinal consonants, which are sufficient for ordinary purposes. Then there are slight modifications of these radicals; when the consonant is pronounced slightly forward or back of the regular position; (this distinction gives us twenty-four points of formation instead of eight;) other modifications are such additional ones as the nasal, (through nose and mouth simultaneously;) the trill, (vibratory;) the hold, (prolongation of sound;) and a complete list of possible modifications, most of which do not enter into speech.

2. NOMENCLATURE.—We give, as before, the consonant scheme as an example of the whole, using the same letters in the preceding paragraphs.

The four points of consonant-formation are designated as

(*a*) Back; (*b*) Front; (*c*) Point; (*d*) Lip. The mixed varieties (*e*) are designated by the word *mixed* added to the organic name; Back-mixed, Front-mixed, Point-mixed, Lip-mixed.

The four modes of formation are called: (*f*) [Primary;] (*g*) Divided; (*h*) Shut; (*i*) Nasal. The word *primary* is always omitted, being understood from the organic name. The addition of voice is indicated by the word *voice*, (*j*) The modifiers are: *inner*, *outer*, *close*, *open*, *trill*, *nasal*, *hold*, and several others, all of which have a precise and invariable meaning.

To name any consonant, mention its point of formation, its mode of formation, and *voice* last of all. At what point the modifiers are to be named, is not mentioned, but it would seem most natural to use them as adjectives before the rest of the name.

We give some examples of naming sounds on this plan: *p* as in pea, Lip-Shut; *b* as in bee, Lip-Shut-Voice; *m* as in me, Lip-Nasal-Voice; *t* as in tea, Point-Shut; *t* as pronounced by the Irish in *tree*, the tongue touching the edges of the teeth instead of the upper gum, Outer Point-Shut; *l* as in lea, Point-Divided-Voice; *r* as in ray, Point-Voice; *r-r-r* as in r-r-r-venge, (heard on the stage,) Trilled Point-Voice; *zh* or *s* as in pleasure, Front-Mixed-Divided-Voice; *g* as in go, Back-Shut-Voice; *ng* as in sing, Back-Nasal-Voice.

4. NOTATION.—The basis of the consonant-signs is an arc of 270°, like a Gothic letter **C**. This, turned in the four directions

C	⊖	⊙	⊘
Back,	Front,	Point,	Lip.

denotes

The mixed signs are formed by bending the ends of the radical sign back until it assumes somewhat the shape of an “eye” (for hooking). This turns in each direction for “back-mixed, front-mixed, point-mixed, lip-mixed.”

The radical sign unchanged indicates the primary consonant. The divided signs have a *cleft* at the point opposite the opening, like that in the back of the figure 3. The mixed-divided signs have this cleft together with the curled ends. The shut signs have the opening *shut* by a straight

line, which for distinctness projects a little at each end. The nasal signs are shut partly by the straight line, partly by a double curve or line of beauty which is the nasal symbol.

The symbol of voice is a straight line added in the form of a radius drawn to the middle point of the arc.

The modifiers follow the consonants, or, where the modified sound is a regular element of speech, are incorporated with them.

The vowels are all formed with a straight-line stem hooked at either or both ends, and extending above or below the line of consonants, so that it is easy to distinguish the vowels, and hence the number of syllables.

The appearance of the printing is neat and uniform, though doubtless improvements will be made in the forms, the general principles being unchanged.

We can only hope that this imperfect sketch may call the attention of some readers to this novel and beautiful system. Even if it be considered utterly impracticable as a writing-system, its analysis of sounds and vocal exercises will amply repay any teacher for its examination.

CHARLES E. SPRAGUE.

HOT SUMMERS.

APPLETON'S JOURNAL gives the following account of remarkably hot summers:

In 1132 the earth cracked by reason of the heat, the wells and streams in Alsace all dried up, and the bed of the river Rhine was dry. In 1152 the heat was so great that sand exposed to the sun's rays was hot enough to cook eggs. In 1160 great numbers of soldiers in the campaign against Bela died from the heat. In 1276 and 1277 crops of hay and oats failed completely. In 1303 and 1304 a man could have crossed, dry-shot, over the rivers Seine, Loir, Rhine, and Danube. In 1393 and 1394 a multitude of animals perished by the heat, which was so great that the harvest dried up.

In 1440 the heat was extraordinary. In 1538, 1539, 1540, and 1541 all the rivers were nearly dried up. In 1556 there was a great drought which extended over nearly the whole of Europe. In 1615 and 1616 there was, in Italy, France, and the Netherlands, an overpowering heat. In 1648 there were fifty-eight consecutive days of extreme heat. 1678 was very hot, as were the first three years of the eighteenth century.

In 1718 it did not rain from April until October! The growing grain was burned, the rivers dried up, and the theatres (but wherefore is not stated) were closed by command of the police. The thermometer showed thirty-six degrees Reaumer, equal to one hundred and thirteen degrees Fahrenheit. In irrigated gardens the fruit trees bloomed twice. In 1723 and 1724 there was great heat. The summer of 1746 was hot and dry, the growing grain being calcined. It did not rain for months. 1748, 1754, 1760, 1767, 1778, and 1788 were years in which the summers were extremely hot. In the famous comet year—1811—the summer was warm, and the wine produced that year was very precious. In 1818 the theatres had to be closed on account of the heat, the highest temperature being thirty-five Reaumer, or one hundred and twelve Fahrenheit. During the three days of the revolution of July in 1830, the thermometer stood at thirty-six degrees Centigrade, about ninety-seven Fahrenheit. In 1832, during the uprising of the 5th and 6th of July, the temperature was about the same.

THE GERMAN SOLDIERS AT DRILL.

“THE discipline and daily routine of exercise for the Prussian army is, to all foreigners, a source of never-ending wonder. The early morning is devoted to cleansing the quarters, and correcting any irregularities which may have arisen out of the previous day's duties. Later in the forenoon the hours are given to study—arithmetic, geography, geometry, theory and practice of military

science; and even singing is not neglected. Great importance is attached to the studies of the soldiers, and, by attaining a certain advancement in knowledge, each one, after satisfactory examination, can shorten his term of service from one to two years. In the afternoon of each day the bodily culture is attended to, and this consists not only of purely military drill, but also of every variety of physical exercise, calculated to add either strength or suppleness to the human form—running, leaping, vaulting, balancing, bayonet exercise, lifting, shooting, bending, altogether such an innumerable variety of movements that no muscle of the body is without its daily exercise. These squad drills are followed by company and regimental parades, and at short intervals by grand field movements of brigades and divisions, and these once or twice a year by grand army movements with mock battles. I have not been fortunate enough to witness any of their grand tactics, but the exercises in detail by company, batalion, squadron or battery, and in particular the artillery movements seem to me to be as near perfection as patience and practice can make them."

WILHELMSHOEHE, NAPOLEON'S NEW RESIDENCE.

KING WILLIAM of Prussia has designated, as the residence of Napoleon, one of the most delightful resorts of royalty in Germany, more so on account of its fine location and beautiful park than its palace. The most remarkable features of the palace are the fine cascade, fountains, and other water-works, deservedly ranked among the finest of Europe, and in some respects surpassing those of Versailles near Paris. The mountain side upon which they are located, situated about three miles from the City of Cassell, is about twelve hundred feet in height, and crowned with a huge structure called the Giant's Castle, from the centre of which rises a pyramid ninety-six feet high, supporting a statue of Hercules. This bronze figure,

full thirty feet high, represents Hercules leaning on a club, having standing-room inside for six or eight persons. The castle covers the reservoir containing the waters, which on Sundays and *feté* days are tumbled down an incline plane of three hundred yards, with a width of forty feet, broken at distances of fifty yards with small basins, the whole constructed of solid masonry, bearing a remarkable grotto-like and antique appearance. At the foot, the water is gathered again to pass through an aqueduct that looks like a relic from ancient Rome, and finally shoots up in a stream of twelve inches thickness to a height of one hundred and ninety-feet.

In the park, which has some of the finest walks and cultivated woods to be seen anywhere, are a number of other trifles for the pastime of royalty, such as a ruin built in exact imitation of a dilapidated castle of the middle ages; also, an extensive green-house with floral attractions from all climes, and statues and fountains innumerable.

All this was built by order of Duke Carl of Hesse Cassel, at the beginning of the last century, with a desire to construct something which had not its equal in the world. Up to 1866 it was used by his descendants as a summer residence, but the German war of that year left it in the hands of the Prussians, who now find it of some use; for in this retired, yet charmingly beautiful spot, his recent Imperial Majesty will have a fit place to meditate over past grandeur and human follies.

NATIONAL STATISTICS OF EDUCATION.

THE Bureau of Education, through Commissioner John Eaton, Jr., has just published a "Circular of Information" of seventy pages, containing the most important statistics of Education in the United States, and the names and post-offices of all the executive school officers in the United States. It was called forth by the great demand for educational statistics which has grown up with the growth of the school system of the several States. Some of the

facts presented are not particularly complimentary to our vaunted pre-eminence in wide-spread diffusion of popular education. For instance, the majority in the last general election was 309,723; had less than one-fifth of the illiterate voters combined, they could have determined the election. The non-reading and writing voters outnumbered the majorities in seventeen States. The financial value to our country of a high standard of education is illustrated by statistics of its relations to the Post Office Department. Taking the standard of New England as a basis, the same use of post-office facilities throughout the country would not only make up the five millions of annual deficit, but would create a surplus of seven millions of income, which would allow of a reduction of one-third in the letter postage. On this point Commissioner Eaton says:

“The Government is, in a sense, taxing the literate or reading population of the entire country to furnish postal facilities to those who are illiterate or cannot read and write. Indeed, the tax falls doubly on New England and middle States, comparing by sections. The first pay more postage than the average cost per capita, and they secondly pay by tax the largest share of the \$5,000,000 of deficit. If the entire population in all sections yielded the same postal income—that is, 87-7 cents per capita, as the population of New England—the Post Office Department would have no deficit, but be self-supporting, and yield a surplus of \$7,816,596 (26,257,000—\$18,440,404), or enable us to run the Post Office Department with present expense and reduce postage one-third. The total (\$18,440,404.90) of the expenses column (Auditor's Post Office Report), divided by the total population in 1860 (11,149,803), gives 58.6 cents—say, for convenience sake, 49 cents—as the average per capita which it costs to run the Post Office Department. But there is in the New England States an excess over the average per capita, in the middle States a per capita excess of 19 cents, and in the North-western States a per capita excess of 9.4 cents, while the Coast Planting States fall 36.6 cents below the average per capita cost, and the Central Slave States fall 35.9 cents below the average per capita cost, and Texas falls to 40.9 cents below.

The statistics of illiteracy in the Southern States are a sufficient commentary on the depressing influence which slavery has exerted on popular education. Of adults not able to read and write, Alabama has 228,152; Florida, 32,795; Georgia, 240,193; Kentucky, 161,370; Louisiana, 195,991; Mississippi, 219,487; Missouri, 104,911; North Carolina, 210,397; South Carolina, 193,561; Tennessee, 183,805; and Virginia, 303,015; while in the whole country there are 2,952,239 adults who can neither read nor write. A large proportion of these are colored people who have been in a state of slavery. The greatest percentage of illiterate persons is in Mississippi, where it is 60.85. The percentage of illiteracy is the smallest in New Hampshire, where in every 100 there are only 2.26 persons who are unable to read and write. The next best educated States come in the following order: Maine, Connecticut, Wisconsin, Michigan, Vermont, Minnesota, Pennsylvania, Ohio, New York, Kansas, Rhode Island, Iowa, and Massachusetts.

The per capita of Internal Revenue paid is—in the Middle States, \$4.62; North-western States, \$4.30; Central Slave States, \$2.81; Coast-planting States, \$9.08."

There is a table showing the per centage of the Prussian conscript who can neither read nor write as compared with the French. In the former it is 3.81, while among the latter it is 30.5, showing that in Prussia education is very general. More attention has of late years been given to collecting information in regard to education; and it is gradually being classified and arranged so as to be useful. The statistics now in process of collection are upon the comparative method by which they are rendered in the highest degree useful. The Bureau of Education, with its power of international communication with other countries in relation to their educational facilities, will doubtless be able to collect a vast amount of information not usually within the reach of statisticians; and, with this as a basis, we ought to see a material acceleration of our educational progress at no distant period. One drawback to sound advancement in this direction is the idea so firmly fixed in the popular mind that the United States are immeasurably ahead of all other *nationalities* in the diffusion of popular education. Compa-

rative statistics will show approximatively, if not exactly, the true status of our schools, and the condition of our adult population educationally. Illinois, for instance, contains nearly 60,000 adults who can neither read nor write; while Massachusetts contains nearly 47,000 of the same class; and other States, with high pretensions in educational matters, are in no better condition. If all the illiterate adults in the United States were collected into one locality of the country, they would make a State larger in population than Pennsylvania, plentifully supplied with the schools, academies, colleges, and universities that we have not yet built, and with the public libraries that have not yet been founded.—*National Era*.

EDUCATIONAL INTELLIGENCE.

NEW HAVEN.—The Report of the Board of Education for the year ending Sept. 1, 1870, shows that the number of children between the ages of four and sixteen years was 9,936; number registered during the year was 6,878; average number belonging, 5,818; average daily attendance, after deducting absences, 5,502. The total expenditures for the year were \$192,215 92, of which \$84,568 25 were for teachers' salaries, and \$62,744 65 in payment of debt. The real estate owned by the School District is worth, at the original cost, \$251,298. The district is now entirely out of debt. Special attention is given to drawing, as taught by Prof. Louis Bail.

AUBURN, N. Y.—The School Census gives the number of children between the ages of five and twenty-one years as 4,181, of whom 2,775, or about 66 per cent., were registered as having attended school some part of the year. The number of schools was five, together with the high school and the orphan asylum. The expenditures during the year, \$29,184 67; \$19,482 54 for teachers' wages. Number of teachers employed, 41, of whom 35 were females.

Mr. E. A. Charlton, principal of the High School and secretary of the Board of Education, sends us a very interesting annual report, in which an account is given of the establishment of the system of public schools in Auburn, and a general statement of the present condition of education. Satisfactory progress has been made during the year.

SAVANNAH, GA.—A report of the condition of the Public Schools of the city of Savannah and county of Chatham for the year ending July 29, 1879, gives some interesting statistics. The number of pupils enrolled was 1,754; average number in schools, 1,245; average in attendance, 1,077; number of teachers, 40, five of whom are employed in the county schools, which have 150 pupils. Expenditures for the year, \$29,971 46, \$24,878 80 being for salaries.

TROY, N. Y.—From the Manual of the Board of Education for the school year beginning March, 1870, we learn that the number of licensed teachers during the past year was 123; schools, 39; children between the ages of five and twenty-one, 16,700; whole number of children taught, 10,420; average number belonging, 5,521; average daily attendance, 4,960; estimated value of school property, \$215,000; total expenditures, \$102,941 83; average cost of tuition for each pupil registered, \$9 24; for each pupil in average daily attendance, \$12 08.

OSHKOSH, WIS.—There are forty-one teachers employed in the Public Schools, and about 2,200 children in attendance. The number between the ages of four and twenty is 4,273. The average cost of tuition for each during the past year a fraction over \$12.

HALL'S JOURNAL OF HEALTH says: "If a man will give himself sleep enough, and will eat enough nutritious food at proper intervals, and will spend two or three hours in the open air each day, he may study and work and write until he is as gray as a thousand rats, and will still be young in mental vigor and clearness."

MISCELLANEA.

PROGRESS.—Something new has happened under the Oriental sun. A normal school for the education of Turkish girls, for the special purpose of training them to be teachers of their own sex, has just been opened in the most Turkish portion of the Turkish capital, under the very shadow of the great mosque of Saint Sophia.

PHILOLOGY has lost another of its leaders, Dr. Reinhold Klotz. Born in 1807, he was attached to the University of Leipsic ever since 1831 as Professor of Classical Philosophy, and after the death of Gottfried Hermann, co-director of the Philological Seminary. His numerous editions of classical writers are justly famous, but he has also done no small service to science by the "*Jahrbucher fur Philologie und Padagogik*," which he founded, together with J. C. Jahn, in 1831.

GEN. HOWARD says that within two years he expects to see one thousand students at Howard University, Washington. It commenced three years ago with five students; it has now over four hundred.

THE UNIVERSITY of Vienna has decided to admit women to all the advantages of its medical school, and two female students have already availed themselves of the privilege.

THE first movement towards education in Newark was made Nov. 21, 1675, by the following act:—"The Town's Men have liberty to see if they can find a competent Number of Scholars and accommodations for a School Master, within the Town."

It was not contemplated in this act to establish a free school, but the consent of the town was in those days requisite for any purpose. The townsmen made the bargain and the people made up the money, Feb. 7, 1676.

RUTGERS COLLEGE has seventy-six new students. Its Grammar School has one hundred and eighty, most of whom are preparing for college.

GEOLOGICAL HALL, Rutgers College, will be commenced very soon. The President has raised \$120,000, and is still prosecuting his labors as Committee on Subscriptions. He purposes to get at least \$40,000 more—\$30,000 for a chapel, and \$10,000 for a lectureship. This \$40,000 he intends getting this centennial year—extending to '71 Commencement.

AIMLESS EDUCATION.—Here is a rich man's son, who has been educated at great expense and pains, who has graduated from college, and has come out a gentleman. He has studied, not with a view of fitting himself for any avocation in life, but with the view of being a gentleman. He reads, not for the sake of knowing anything, but for the sake of being a gentleman. Soon his father breaks down; and he, when he is about twenty-five years old, finds himself a poor man's son, and dependent on his own exertions. And he says to himself—"What shall I do for a living?" He asks his feet, and his feet say—"I do not know." He asks his hands, and they say—"I do not know." He asks his head, and it says—"I never learnt anything how about to get a living." There is but one man that can befriend this poor wretch, and that is the sexton. Could anything be more useless than such a person? Could there be anything more pitiable than such histories? And yet they are happening every day.

FOUR students have been dismissed from Princeton for attempting to "smoke out" a freshman.

THE REV. DR. EDWARDS, of Hagerstown, Md., has been chosen President, and the Rev. Mr. Wightman, of Greencastle, Pa., Vice-President of Wilson College.

ANTIOCH COLLEGE draws its support from twenty-nine States.

SAYS JEAN PAUL RICHTER: "To ensure modesty, I would advise the educating of the sexes together; for two boys will preserve twelve girls, or two girls twelve boys, innocent, amid winks, jokes, and improprieties, merely by that instinctive sense which is the forerunner of matured modesty. But I will guarantee nothing in a school where girls are alone together, and still less where boys are."

"THE entering class of Cornell University was very deficient in English Grammar." May not the same be said too truthfully of the entering class of every one of our colleges?

THE volunteer labor corps of Cornell contains one hundred students. Thus far these students have carried off a majority of the prizes.

FABER'S SPEAKING MACHINE is attracting attention in Germany. It pronounces each letter distinctly, and even laughs and sings. German philologists have heretofore declared it impossible to imitate the letter I (as pronounced in German) by artificial means, but this machine speaks the word Mississippi very plainly.

PROF. E. P. EVANS has "resigned" his position in Michigan University, and has gone to Europe. Careful notes of the lectures of famous German Professors may enable him to publish a new and original book on his return.

It is said too that "Professor" James Worman has "resigned" from the Drew Theological Seminary.

THE corner stone of the University of the Pacific was laid a few days since at San Jose. Gentlemen and ladies receive the same instruction in this college. Twenty-four young ladies have already graduated as mistress of sciences.

A COUNTRY SCHOOLMASTER thus describes a money lender: "He serves you in the present tense; he lends you in the conditional mood; keeps you in the subjunctive; and ruins you in the future."

JAMES II., when Duke of York, made a visit to Milton, out of curiosity. In the course of conversation, the Duke said to the poet that he thought his blindness was a judgment upon him, because he had written against Charles I., the Duke's father. Milton replied: "If your Highness thinks that misfortunes are indices of the wrath of Heaven, what must you think of your father's most tragic end? I have lost only my eyes; he lost his head."

AT a school in the north of England, during a lesson on the animal kingdom, the teacher put the following question: "Can any boy name me an animal of the order of Dentata, that is a front-toothless animal?" A boy, whose face beamed with pleasure at the prospect of a good mark, replied: "I can." "Well, what is the animal?" "My grand-mother," replied the boy, in great glee.

"DEFINE the difference in meaning between experimental philosophy and natural philosophy," said a schoolmaster to one of the most forward of his pupils. "Why, sir," replied the boy, "experimental philosophy is our asking you to give us a half holiday, and natural philosophy is your saying: "Don't you wish you may get it?"

A LADY asked a pupil at a public examination of a Sunday school: "What was the sin of the Pharisees?" "Eating camels, marm," quickly replied the child. She had read the Pharisees "strained at gnats and swallowed camels."

"WHAT is the chief use of bread?" asked an examiner at a school exhibition. "The chief use of bread?" answered the urchin, apparently astonished at the simplicity of the inquiry. "Why, to spread butter and molasses on."

WE have never known a finer specimen of the retort courteous, than is found in the following colloquy between a dramatic author and a critic. Of course it happened in Paris: *Author*—"Sir, you have 'cut up' my play, while at the same time you are not capable of writing a single scene of it yourself." *Critic*—"Pardon me, my dear sir; in the courts, the jury which condemns the criminal is not obliged to have committed the crime."

It is expected that the AMERICAN EDUCATIONAL MONTHLY will begin its Eighth volume enlarged in size, improved in appearance and in matter. Its subscription price will be TWO DOLLARS.

SCIENTIFIC.

SENSITIVE FLAMES.—Flames are frequently extremely sensitive to certain sounds. At an instrumental concert the gaslights often vibrate in unison with certain pulsations of the sound which they seem to select. This is most noticeable when the pressure of gas is so great that the flame is on the verge of flaring, and the vibration of the sound-wave is sufficient, as it were, to "push over the precipice." If we turn on the gas, in a common fish-tail burner, we reach a point where a shrill whistle will produce the same effect as increased pressure of the gas, and cause the jet to thrust out long quivering flames. Mr. Barrett, of London, describes a peculiar jet which was so "sensitive that it would tremble and cower at a hiss, like a human being, and even beat time to the ticking of a watch."

SINGING FLAMES.—If we lower a glass tube over a small jet of gas, we soon reach a point where the flame leaps spontaneously into song. At first the sound seems far remote, but gradually approaches until it bursts into a wild scream that is almost intolerable. The length of the tube and the size of the jet determine the pitch of the note. If we raise the tube to a point where it is just ready to sing, we shall find that it will respond to the voice when the proper note is struck. The flame, owing to the friction at the mouth of the pipe, is thrown into vibration. The air in the tube, being heated, rises, and not only vibrates in unison with the jet, but, like the organ-pipe, selects the tone which is adapted to its length, and, in part, governs the pulsation of the flame.

PROF. GUMBEL, of Munich, has been examining microscopically the limestone of various ages, including that from the chalk and the Potsdam and Trenton of the Silurian. With these he has compared the deep-sea ooze taken up in the late dredging expeditions. He finds in all these cases the peculiar minute coccoliths and other remains of an extremely simple structure which now exists in the depths of the ocean; so that it seems to be proved that the same sort of ooze existed at the dawn of life on our planet at the bottom of the sea as is now found.

M. DIDIERJEAN, a red-lead manufacturer in France, found that two of his workmen never were affected by any symptom of lead poisoning. The only peculiarity of their habits, that he could learn, was that they always drank milk at their meals at the works. He then made the use of milk obligatory on the others, and during eighteen months has kept all his men free from lead disease.

THE MESSRS. CLARK, of Cambridgeport, have recently made two contracts for immense telescopes of equal size and capacity. One is for the Naval Observatory at Washington, and the other for Mr. Cyrus H. McCormick, whose intended disposition of it is not yet positively known. The specifications for the former are for a refracting instrument, with an object glass of twenty-six inches diameter. Its cost is estimated at \$50,000, and it is expected that its construction will occupy about four years.

POISONOUS SODA.—Dr. Fresenius has discovered that much of the soda that is used contains arsenic, and he traces its source through a curious history in the manufacture of this drug. Sulphuric acid is largely made use of at alkali works; and this acid in turn is made extensively from pyrites. There are some new works of the kind started in the Highlands on the Hudson, where a bed of pyrites has been found. Almost all pyrites contain arsenic, which remains as an impurity in the acid, to be passed over into the carbonate of soda, when used for that purpose. As sulphuric acid is used for so many things which are freely consumed by man, the discovery is one of no little importance, and it is to be hoped that manufacturers will take special pains to have the arsenic eliminated.

VELOCITY OF ELECTRIC WAVES.—Prof. Gould has found that the velocity of the electric waves through the Atlantic cables is from 7,000 to 8,000 miles per second, and depends somewhat upon whether the circuit is formed by the two cables, or by one cable and the earth. Telegraph wires upon poles in the air conduct the waves with a velocity a little

more than double this; and it is remarked as a curious fact that the rapidity of the transmission increases with the distance between the wire and the earth, or the height of the support. Wires buried in the earth likewise transmit slowly, like submarine cables. Wires upon poles but slightly elevated transmit signals with a velocity of 12,000 miles per second, while those at a considerable height give a velocity of 16,000 or 20,000 miles.

MUDDY WATER.—Dr. Schloesing announces that muddy water may be instantly purified and made potable by the addition of one-thousandth part of chloride of calcium, or bicarbonate of lime, or caustic lime. This is an important fact to be known where muddy rivers supply the only drink, or where rain disturbs the wells and water courses. The sediment falls rapidly, and the pure water may be poured off.

SOLUBLE GLASS has been successfully applied on bands of machinery to restore elasticity and polish, and is found to be better adapted for the purpose than gum arabic or similar substances. Experiments upon the leather straps of a spinning jenny proved entirely satisfactory, and as liquid quarts or soluble glass is now largely manufactured, a fair trial of it is worthy the attention of our machinists.

It has been found that the hyposulphite of soda, which is now manufactured very cheaply for the use of photographers, is much better than the common washing soda to wash delicate objects. It attacks neither the skin of the hands nor the objects to be washed, as does the common soda; and at the same time it is an effective bleaching agent, and takes out many spots better than any other substance.

A NEW PHOTOMETER.—A photometer, invented by M. Nagant, is based upon the formation of a column of liquid, partially opaque, which may be drawn out until the length is such that the light from an illuminating body ceases to be visible through the liquid. The length of the column, which completely obscures the light, starting from the point where the column is thinnest, gives a measure of the intensity of light under examination.

DENSITY OF ELECTRICITY.—The density of electricity on a sphere is the same at all points of the surface; on a plate the density is greatest at the edges; on elongated conductors it is greatest at the ends. When the conductor ends in a sharp point the electrical density at the point is so great that it discharges itself into the air. So says Prof. Tyndall, and he holds also that a lightning-rod serves its purpose by

utralizing the electricity of a cloud through electricity of the opposite kind which it conveys from the earth through point.

THE GREASE TREE.—They have in China what is known as the grease tree. Large forests of them grow there, and the oleaginous product has become an article of traffic. It appears from "Notes and Queries on China and Japan" that this tree was not long ago imported into India, and the experiment of importing it there is said to have proved quite successful. In the Punjaub, and north-western provinces generally, it grows as rapidly and as vigorously as in native soil, and there are already thousands of trees on the Government plantations, yielding tons of seed, admirably adapted to a variety of commercial purposes. Dr. Meson, a chemist in the Punjaub, has prepared hundred weights of grease from this particular tree, and has forwarded on trial a portion of it to the Punjaub Railway, to have its qualities tested in a practical manner as lubricating material for those parts of machinery constantly exposed to friction. The grease thus obtained forms an excellent fuel, burning with a clear, brilliant, and, what is infinitely more to the purpose, a white light, and at the same time emitting not a trace of any unpleasant odor, or of the ordinary disagreeable accompaniment of combustion—smoke. In view of these singular properties, a correspondent of a medical journal asks whether this grease tree is the same as the soap tree? We have seen no answer.

THE grand aquarium to be built in Brighton, Eng., when completed, will make a very respectable miniature sea. The length of the structure will be 700 feet, and the width 100 ft. Boats could freely be launched on such an expanse of water, and one might spend days exploring the mysteries of the animals and plants contained within its shores.

CURRENT PUBLICATIONS.

MESSRS. G. P. PUTNAM & SONS, New York, have published "The Life and Voyages of Christopher Columbus," by Washington Irving (condensed by the Author from his larger work), for students and young persons. It contains a portrait of Columbus, a map, and several unique illustrations. 325 pages, tinted paper, cloth binding. Also, "The Student's Life of Washington" (condensed from the larger work of Washington Irving), for young persons and the use of schools. It has several excellent portraits and illustrations. 714 pages, nicely gotten up.

MESSRS. ELDREDGE & BROTHER, Philadelphia, have just issued another volume of Chase and Stuart's Classical Series, "C. Sallusti Crispi Catalina et Jugurtha," with explanatory notes, lexicon, etc. It is uniform with the former volumes of this excellent series. 329 pages.

MESSRS. HURD & HOUGHTON, New York, have published "First Steps in English Literature," by Arthur Gilman. A very neat little volume, in flexible covers, 231 pages. The author will be recognized as one of the favorite contributors to our columns.

MESSRS. LEYPOLDT & HOLT add to their series of standard educational works Notes and Vocabulary to accompany "Whitney's German Reader." 523 pages.

MESSRS. D. APPLETON & Co. have published "Elements of Astronomy," by J. Norman Lockyer. It is well illustrated with many cuts, a colored representation of the solar, stellar, and nebular spectra, and celestial charts of the northern and southern hemispheres. 312 pages.

MESSRS. WILSON, HINKLE & Co., Cincinnati, have added to their Eclectic Educational Series "The Elements of Natural Philosophy," by Sidney A. Norton. It has 468 pages, and three hundred and fifty illustrations. In mechanical execution, this book has no rival.

MESSRS. HARPER & BROTHERS send us "Willson's Intermediate Fifth Reader." It is on the original plan of the School and Family series—embracing, in brief, the principles of rhetoric, criticism, eloquence, and oratory as applied to poetry and prose. 372 pages, finely illustrated. Also, "The Mystery of Edwin Drood," by Charles Dickens. 104 pages, illustrations, paper covers, price 25 cents. "Tom Brown at Oxford," new edition, with illustrations, by Sidney P. Hall. 251 pages, paper, price 75 cents.

MESSRS. CHARLES SCRIBNER & Co. have ready the xivth volume of their Illustrated Library of Wonders, "Lighthouses and Lightships," a descriptive and historical account of their mode of construction and organization, by W. H. D. Adams. 320 pages, sixty illustrations, price \$1.50.

WHITMAN PECK, New Haven, has issued a Revised Edition of his "Practical Business Arithmetic," for common schools and academies, including a great variety of promiscuous examples. Considering the business disability under which Mr. Peck labors in being his own publisher, his books so far have done well.

JOHN W. HOYT, United States Commissioner to the Paris Universal Exposition of 1867, has recently made a very important contribution to our fund of general educational information concerning the countries represented at the Exposition of 'Sixty-Seven. His report fills a large volume of 368 pages. We purpose speaking of it more in detail at some future time.

W. P. ATKINSON, Professor of English Literature in the Massachusetts Institute of Technology, has delivered an important address on the "Organization of High Schools" before a sub-committee of the Boston School Board. Messrs. Crosby & Damrell, Boston, have published it.

W. S. BROWN, Dansville, N. Y., has published a little pamphlet, entitled "Model Lessons for Board or Slate," for the use of primary teachers and parents. Price 20 cents.

AMERICAN EDUCATIONAL MONTHLY.

DECEMBER, 1870.

TEACHERS' INSTITUTES.

INSTITUTES for the instruction and training of common-school Teachers have been held in the State of New York since 1843, although they did not receive legislative recognition until 1847. The New York statute now makes the duty of School Commissioners, "to organize one institute each year" in their respective counties, "subject to the advice and direction of the State Superintendent of Public Instruction," who is empowered to employ suitable persons as instructors. Thus teachers' institutes have become a part of the school system established and maintained by the State. Provision has been made for nine normal and training schools, six of which are in successful operation, and yet but a small per cent. of the 28,000 teachers of the State have received instruction in them. Were it otherwise, institutes would be necessary for securing uniformity of plan and management, improvement in methods of instruction, and increased zeal and efficiency on the part of teachers. It is doubtless true, that large numbers of teachers, though possessing the "book knowledge" necessary to obtain a license, commence their work without any just view of its true nature and importance, and without a knowledge of those means of culture which will

promote mental discipline, not less than scholastic acquirement, as the true aim of education.

The expense of maintaining institutes in this State is about eighteen thousand dollars a year; yet the expenditure seems economical and wise, so long as ten millions of dollars are expended annually for public school purposes, and *one million of children* are receiving their education in the public schools, at an age when impressions received and habits formed are making character for the future men and women of the land.

We quote the following from a late report of the State Superintendent, Hon. Abram B. Weaver :

"It is not claimed that the institute can supply a degree of scientific knowledge, generous culture and professional skill, such as could be attained by long and careful study and training; but it can teach general plans of organization and classification, and make known improved methods of management and instruction, which have been evolved from the wiser experience of those who do understand the principles of correct teaching. It comes within the reach of the great mass of our teachers, giving counsel and encouragement in cases of doubt and difficulty, which each year's experience has discovered. They are serviceable to Commissioners in the matter of supervision, by enabling them to communicate at once whatever plans or suggestions they desire to recommend for general adoption. Definite results may then be expected when they visit and examine the schools. For this reason, if for no other, they should encourage the attendance of each teacher during the entire session, which, at most, is short for the objects to be accomplished. Those who undertake to instruct others, should avail themselves of the liberal provisions made for their own improvement, that the interests they profess to serve may not suffer, nor the public funds be wasted by reason of their neglect or incompetency."

"To be useful, the exercises must be eminently practical. They should have reference especially to primary education, and to those subjects of study properly pursued in the common schools. It has accordingly become the policy of this department, in fulfilling the statutory requirement, to furnish for the institutes instructors of superior ability and experience, who carry with them thoughts fresh and ripe from other fields of labor. Expensive lectures on subjects in themselves, perhaps, entertaining and instructive, but having no direct bearing upon the legitimate work of the institute, have been discarded, and, instead, exercises more practical and useful have been introduced."

The following is the list of Institutes appointed for the year 1870. The time each institute is in session is generally two weeks:

<i>County.</i>	<i>Time of commencing.</i>	<i>Place.</i>	<i>County.</i>	<i>Time of commencing.</i>	<i>Place.</i>
Albany	Oct. 17	Coeymana.	Onondaga	Sept. 19	Skaneateles.
Allegany	Sept. 5	Angelica.	Ontario	Oct. 3	Canandaigua.
Broome	Oct. 3	Union.	Orange	July 18	Middletown.
Cattaraugus	Sept. 5	Little Valley.	Orleans	Oct. 3	Albion.
Cayuga	Oct. 17	Port Byron.	Oswego	Oct. 3	Pulaski.
Chautauqua	Aug. 22	Jamestown.	Otsego	Oct. 24	Cooperstown.
Chemung	Sept. 19	Horseheads.	Putnam	Oct. 24	Cold Spring.
Chenango	Oct. 3	Oxford.	Queens	Oct. 17	Roslyn.
Clinton	Aug. 16	Plattsburgh.	Rensselaer	Sept. 19	West Sandlake.
Columbia	Aug. 29	Hudson.	Richmond	April 18	Stapleton.
Cortland	Oct. 17	Homer.	St. Lawrence	Aug. 22	Gouverneur.
Delaware	Oct. 3	Walton and Delhi.	Saratoga	Sept. 5	Saratoga Springs.
Dutchess	June 7	Poughkeepsie.	Schenectady	Oct. 31	Schenectady.
Erie	Nov. 14	White's Corners.	Schoharie	Aug. 1	Cobleskill.
Essex	Aug. 16	Elizabethtown.	Schuyler	Oct. 3	Watkins.
Franklin	Sept. 19	Malone.	Seneca	Oct. 3	Ovid.
Fulton	Aug. 22	Gloversville.	Steuben	Sept. 19	Hornellsville.
Genesee	Oct. 3	Batavia.	Suffolk	Sept. 19	Riverhead.
Greene	Sept. 5	Cairo.	Sullivan	Sept. 5	Monticello.
Herkimer	Oct. 17	Herkimer.	Tioga	Oct. 3	Owego.
Jefferson	Aug. 22	Clayton.	Tompkins	Sept. 19	Ithaca.
Lewis	Sept. 19	Martinsburgh.	Ulster	Aug. 22	Kingston.
Livingston	Oct. 17	Mt. Morris.	Warren	Oct. 17	Warrensburgh.
Madison	Sept. 19	Morrisville.	Washington	Aug. 22	North Granville.
Monroe	Oct. 17	Spencerport.	Wayne	Oct. 3	Lyons.
Montgomery	Oct. 31	Canajoharie.	Westchester	May 23	Portchester and Peekskill.
Niagara	Sept. 19	Lockport.	Wyoming	Oct. 3	Castile.
Oneida	Oct. 3	Rome.	Yates	Oct. 17	Penn Yan.

PRONUNCIATION OF THE LATIN AND GREEK.

THERE is at least a hopeful prospect of a reformation in the school pronunciation of Latin and Greek. For more than a century and a half now, most Englishmen "have applied to the Latin tongue the principles which regulate the pronunciation of their own." Why the same principles (!) have not been applied as fully to the Greek language; why they have not been applied at all in the case of the Hebrew and other ancient tongues; why they might not almost as well be resorted to in the case of Italian and French, are questions which it is useless to ask. Let one pronounce five lines of French as if it were English, or five lines of English as French, and he will see the appropriateness of applying to one language the orthoepic and accental rules of another.

Latin used to be a possible means of intercourse between

scholars who were mutually ignorant of each other's native tongue. But now an American, however proficient in the language of Cicero, is unable to understand, or make himself understood by, a German or Frenchman, if Latin is the medium of conversation. It was not always thus with the English-speaking people, though the corruption dates its beginnings back of Milton. It will be remembered that he advises a "distinct and clear pronunciation, as near as possible to the Italian, especially in the vowels." "To smatter Latin with an English tongue," he says, "is as ill a hearing as Law-French." Phillips, who taught Latin to princes in the middle of the last century, complains of their calling *amo*, *emo*; and *emo*, *imo*; and *imo*, *aimo*; but adds that "many gentlemen in England still speak Latin *like men, ore rotundo*." The correct pronunciation of the Latin vowels was taught in Winchester College until about 1750, when they concluded it was best to go wrong with the rest of the nation. Ainsworth, the Latin lexicographer, says in a preface, that "foreigners hold us little better than barbarians in many parts of pronunciation." He finds especial fault with the prevalent neglect of the quantity of vowels, and the "depraved sound" of C and G before *e*, *i*, etc. American school editions of his work, however, suppress everything which he says on these matters. This suppression or misrepresentation of the views of eminent scholars upon this point is common to nearly all cis-atlantic editions of European grammars and dictionaries. They are, almost without exception, "doctored" to suit this latitude, and the original truth is not in them.

Our readers will remember that the learned committee of the Philological Convention, which met at Poughkeepsie in the summer of 1869, recommended the use of the so-called continental sounds of the vowels in Greek and Latin. The men who stand behind this sensible recommendation are among the foremost of American linguists. And now we are rejoiced to see their advice reinforced by that of Harvard University, which favors the use of the following sounds in Latin: *a* as in *father*, *e* like *a* in *fate*, *i* as in *machine*, *o* as in *hole*, *u* as in *rude*; with like shorter sounds of the short vowels; *j* like *y* in *year*, *c* and *g* like Greek *kappa*

and *gamma*. This oldest of American colleges also requests instructors to teach their pupils to pronounce Greek with the *Greek accents*, and with the continental sounds of the vowels and diphthongs. Now, if Yale only takes ground with Harvard, as seems likely from the action of certain of her faculty at the Poughkeepsie Convention, the preparatory schools which act as feeders to these two great institutions, will fall in line at once, and the other colleges will not be long in following suit.

And when this is done, a real and valuable reform will have been effected. We have no patience when we think of the *months* we have wasted in studying and teaching these two languages, because of the prevalent absurd, incoherent no-system of pronunciation, which has somehow been foisted upon these helpless tongues. We cannot take space here to discuss such a matter fully enough to show the grounds of an opinion; but we may say in a word, that only loss can come from disregarding the *genius* of a language or science; that it is only a waste of precious time and strength to teach in words and rules what we forbid or ignore in practice; that the development and etymology of these tongues is inexplicable, so long as we adhere to the present "English" pronunciation of them; that language is properly spoken, and not written; that it unfolds itself according to phonic laws, which are rudely broken, if a new set of sounds is imported to interpret its characters; that falsities cannot be expected to be more fruitful of good in the field of grammar than in that of science. If any excuse is needed for saying thus much on a matter that cannot interest everybody, we trust it may be found in the fact, that in every village in the land, scores of young men and women are busy with the Latin accidence. They will get none too much Latin in the use of the best methods.

Another welcome feature in the Harvard catalogue, is the announcement that students, soon after their admission, will be examined in reading English. For the year 1870, they were asked to prepare themselves in Craik's English of Shakespeare (Julius Cæsar,) or in Milton's Comus. It is high time that our English speech should have more and more critical attention paid to it, both in colleges and high

schools. We plead for more English without asking for less Greek. Perhaps, in many cases, less Greek would be about the same thing as no Greek at all. G.

LETTER FROM A DISTANT SCHOOL-MASTER.

IN the region around Ke-ala-ke-kua Bay, nature seems to have exhausted her store of extremes. Along the shore on both sides, and extending inland about a mile, is a region to which Sahara would be a pleasure ground, while just back of this belt of desolation, the "orange and the citron" flourish, and the wants of man are all supplied with no effort of his, save to put forth his hand and pluck what hangs from overarching boughs, or grows in the clefts of rocks at his feet. It is a perfect paradise for *lazy men*, (lest there should be a rush hither I'll state that the land is all pre-empted, and the owners are too lazy to sell out). The bread fruit and banana grow without planting; luscious pine-apples peer up from between the rocks; sweet potatoes of marvelous size grow among the piles of loose pumice. The native apple offers its rich juice to the thirsty and weary. Yaro grows in profusion on the mountain sides, while the lime, citron, orange, coffee, cocoa, date, and many other tropical trees only ask to be planted and their branches are loaded with fruit that might tempt *another Eve* to partake.

It was my good fortune while there, to sit at the hospitable board of Rev. J. Paris, who resides about three miles from the beach. Upon his table were turkey, ham, Irish and sweet potatoes, and other garden vegetables, pine-apples, oranges, coffee, sugar, cream, butter, etc., and of all that was there spread before me in such profusion, nothing came from outside of his immediate neighborhood, save only the pepper and salt, and the flour from which the bread was made.

Purchasing, for twenty dollars, a horse, that in New York would have cost two hundred, I started one morning on a visit to Honaunau, an ancient city of refuge, distant from

Kealakekua about three miles. Generations of natives had made it one of the oldest traveled roads in the world, yet urging my horse to his utmost, it took me two mortal hours to thread my way over, under and among the jagged rocks with which the plain is covered. The time at which this lava tide rolled down from Mauna Loa, is lost even to tradition, yet in many places it appeared as fresh as though it had started on its errand of destruction but yesterday. In many places I observed round holes, where the lava had surrounded cocoa-nut trees and cooled before the trees had fallen, while the tops of the trees and the clusters of nuts had left their form plainly stamped on the sluggish and rapidly cooling mass, an epitaph that recorded their own fate, and the name and nature of their destroyer. The frequency of these holes, the soil at their bottom and the little islands of verdure that had escaped the over-spreading lava, showed plainly that this must have been a fertile and populous district before vengeful *Pele* had swept it with destruction. A short distance back from Honaunau the fiery flood had poured over a precipice, about seventy-five feet high, and cooled while still flowing, leaving a rigid lava cascade, extending from the top to the bottom of the cliff. Between this cascade and the wall of the precipice, is a space of several feet, where clouds of Australian pigeons resort to hatch their young. Like the cliff at the head of Kealakekua this is also pierced with numerous lava ducts, which extend far back into the mountain. By the assistance of my guide, I climbed to the mouth of one of the largest of these, and lighting a taper, with which I had provided myself, I started on a tour of exploration. Leaving my guide, whom I could not persuade to enter this hole of *Pele*, *this house of dead men*, I walked, stumbled, and crawled about half a mile, up into the bowels of the mountain. The main passage was quite straight and regular, but there were numerous side passages, crypts and chambers along the whole tunnel, and these were literally stowed full of the relics of departed humanity, placed there by those who had lived long before the *Owhyhee* of Capt. Cook was ever dreamed of by the adventurous West. Some of these skeletons were perfect, others had partially crumbled to dust,

while bits of decayed wood, showed the nature of the rude case in which the body had been placed. Only one coffin remained perfect. This had been hewn with a stone hatchet from a section of a soft tree, that grows in abundance up the mountain. These with shreds of ancient *kapa*, a kind of cloth pounded from the bark of a certain tree, were the only relics accompanying the silent inhabitants of these abodes of the dead. This mode of sepulture was nearly universal among the ancient Hawaiians, and it is practiced to quite an extent to the present day.

This cave was perfectly free from any signs of moisture, and I experienced currents of pure air passing down from the mountain. The odor of the charnel house was entirely wanting, and but for the proximity of the dead, with its associate ideas, this would be a cool, healthy and not unpleasant retreat for the living. The bright sun, however, had assumed new beauties as I emerged again into its light, and I cared not to halt again till I had reached Honaunau.

It is a coincidence, not a little singular, that the Hawaiians held many traditions and customs similar to those of the ancient Hebrews. One of the most striking of these, was that of their cities of refuge; two of these were on the island of Hawaii, one in the valley of Waipio on the East side of the island, the other at Honaunau. This latter, on account of its associations, was regarded by the old Hawaiians, with almost as much veneration as the Jews cherished for their sacred temple at Jerusalem. The boldest warrior that ever wielded a sceptre over the dusky natives of Hawaii would not dare to pass beyond its sacred limits in pursuit of a fleeing criminal, be his crime ever so great. Even the great Ka-méha-méha, paused, trembling at its portal, though goaded by the fury of an outraged husband, whose hands were still reeking with the blood of the chief who had wronged him; and the rock of *Ka-ahw-manu* is still pointed out as the spot where this chiefess repented and succeeded in soothing the anger of her offended lord. This city, or place of refuge, was built for *Keawe*, who reigned on Hawaii about three hundred years ago and while it was sacred to nearly all the gods, this deified king was regarded

as its tutelar divinity. It is seven hundred and fifteen feet long, by four hundred and four feet wide ; its walls are from twelve to twenty feet high, and twelve feet thick. These walls were formerly surmounted with images, four rods apart over the whole extent. Within were four large *hei-ous*, or temples, one a solid pyramid of stone one hundred and sixty feet long by sixty feet wide and ten feet high.

In many parts of the outer wall I observed massive rocks that must weigh several tons ; some of these were six to eight feet from the ground, and destitute of machinery as these people were, it is a marvel how they raised them to their present position. Just outside of this enclosure stood, until within a few years since, the house of Ke-awe, which was for over two hundred years the royal mausoleum of the kings and high chiefs of Hawaii. A short distance from this, my guide pointed to the rock of the Keoua, upon which that giant king was accustomed to sun himself after a bath in the sea. This rock is fourteen feet long, and tradition says that Keoua could touch one end with his toes, while with his fingers he could grasp the other—this is doubtless exaggerated, yet the old missionaries say that the chiefs found here, on their first arrival, were men of gigantic stature ; and the natives have many traditions proving that *there were giants in those days*, and that they had degenerated in size even at the early day to which the missionaries allude.

In a land where nature appears only in her fiercer moods, where the earth frequently rocks and shakes so that no one is able to stand upon his feet, where the fiery floods can be heard lashing the inner surface of the crust that separates the home of man from the hell beneath, and where the torrents of molten lava, miles in width, rush with incredible velocity down from the summit of Mauna Loa into the ocean, sweeping to destruction houses, villages, trees and forests ; it is not wonderful that these savage islands should have worshiped only those malignant deities whose wrath could be propitiated only by the greatest sacrifice in the power of man to offer. Hence, upon numerous altars throughout this whole group, human sacrifices were of frequent occurrence.

With fearful frequency were the altars at Honaunau

deluged with human blood in those days of darkness, before the arrival of the missionaries. It was situated in a region through which the fierce *Pele* often passed in anger. The insatiate Manó, the man-eating shark, swam around its shores, while the gods of war often led rival chieftains to decide their quarrels, with club and spear, among the rocks with which the mountain side is covered. It mattered not who conquered—the vanquished were taken to this neutral city, and the god of to-day's victory revelled in the blood of those who were the conquerors of yesterday. Whatever the occasion, whether of dire calamity or of exultant joy, human blood was sure to flow over these rocky mounds, that still stand as a land-mark to separate the past from the present, man as he is when left to himself, from elevated man by the principles of Christianity. J. R. K.

HONOLULU, October, 1870.

SUGGESTIVE RECOMMENDATIONS.

MARK TWAIN, the inimitable, in poking fun at the style of war maps published in the New York newspapers has hit very widely—including, with the patent medicine men, certain publishers of national school books, to say nothing of the makers or “authors” of certain school books. We print a few of his remarks, and his “official commendations.” Some of our readers will be reminded of peculiar “recommendations” of school-books which have appeared in illustrated advertising bulletins.

“My map explains itself. The idea of this map is not original with me, but is borrowed from the *Tribune* and the other great metropolitan journals.

I claim no other merit for this production (if I may so call it) than that it is accurate. The main blemish of the city paper maps, of which it is an imitation, is that in them more attention seems paid to artistic picturesqueness than geographical reliability.

Inasmuch as this is the first time I ever tried to draft and engrave a map, or attempt anything in the line of art at all, the commendations the work has received and the admiration it has excited among the people have been very grateful to my feelings. And it is touching to reflect that by far the most enthusiastic of these praises have come from people who know nothing at all about art.

By an unimportant oversight I have engraved the map so that it reads wrong end first, except to left-handed people. I forgot that in order to make it right in print it should be drawn and engraved upside down. However, let the student, who desires to contemplate the map stand on his head or hold it before her looking-glass. That will bring it right.

The reader will comprehend at a glance that that piece of river with the "High Bridge" over it got left out to one side by reason of a slip of the graveing-tool which rendered it necessary to change the entire course of the River Rhine or else spoil the map. After having spent two days in digging and gouging at the map, I would have changed the course of the Atlantic Ocean before I would have lost so much work.

I never had so much trouble with anything in my life as I did with this map. I had heaps of little fortifications scattered all around Paris, at first, but every now and then my instruments would slip and fetch away whole miles of batteries, and leave the vicinity as clean as if the Prussians had been there.

The reader will find it well to frame this map for future reference, so that it may aid in extending popular intelligence and dispelling the widespread ignorance of the day.

MARK TWAIN.

OFFICIAL COMMENDATIONS.

It is the only map of the kind I ever saw.—*U. S. Grant.*

It places the situation in an entirely new light.—*Bismarck.*

I cannot look upon it without shedding tears.—*Brigham Young.*

My wife was for years afflicted with freckles, and though everything was done for her relief that could be done, all was in vain. But, sir, since her first glance at your map, they have entirely left her. She has nothing but convulsions now.—*J. Smith.*

It is very nice, large print.—*Napoleon.*

If I had had this map I could have got out of Metz without any trouble.—*Bazaine.*

I have seen a great many maps in my time, but none that this one reminds me of.—*Trochu.*

It is but fair to say that in some respects it is a truly remarkable map.—*W. T. Sherman.*

I said to my son Frederic William, "If you could only make a map like that, I would be perfectly willing to see you die—even anxious.—*William III.*

A GEOGRAPHER'S VIEW OF 1869.

JUDGE DALY, the President of the American Geographical and Statistical Society, in his last address to the Society, enumerates the following events as making 1869 a memorable year: 1. The connecting of the North Atlantic with the Pacific Ocean by rail. 2. The completion of the canal across the Isthmus of Suez. 3. The exploration and discoveries in South-eastern and Equatorial Africa. 4. The additional evidence now brought to light of a climate in the ice-bound regions of the Arctic, at a past and remote period of time, resembling that of the countries lying near the equator. 5. The marvellous results of the deep-sea dredging of Professors Thompson and Carpenter, revealing the existence of animal life at enormous depths of the ocean, where we should have supposed the existence of life to have been impossible. 6. The very general disturbances throughout the year of the earth's surface by earthquake, distinguishable not so much for its effects in particular localities as for the distribution of the phenomena over the globe, and its appearance in parts of the world where such disturbances have never been previously witnessed within the memory of man. 7. The attractive power of mountains discovered in the pendulum experiments made during the past year at the observing stations upon the Himalayas in India. 8. The discovery through the spectroscope of a method of determining the proper motion of the stars, and the fact that the physical and chemical construction of the whole stellar universe is identi-

cal. 9. The invention and successful practical use of a self-registering compass, by which every motion of a vessel can be recorded and preserved from the beginning to the end of her voyage. 10. The discovery of trees of enormous height and magnitude in Australia, one of which was found to be sixty-nine feet in circumference. 11. The discovery of great deposits of coal throughout the whole of New Zealand, and the finding of coal upon the borders of the Caspian Sea, verify in this last particular a prediction of Humboldt's, both of which discoveries are of the highest importance to commerce. 12. The anthropological researches in Europe, Asia, and Africa, revealing the structure and mode of life and customs of the earliest inhabitants of the earth. 13. The passage and escape of the American ship Congress, last August, through a cyclone of extraordinary intensity and power, in the Atlantic, under circumstances which afford a great deal of information and movement in this terrible phenomenon of the ocean.

\$100,000,000,000 OF SILVER IN THE OCEAN.

ALREADY twenty years ago, Durocher and Malaguti and later Field, found traces of silver in solution in the ocean. Piesse found ten years ago silver and copper, while Field made a quantitative analysis, and consequent estimate, of the amount of silver in the whole ocean; he found it to be more than two million tons, or over 4,000,000,000 pounds, worth about 100,000,000,000 dollars. The quantity is unquestionably there, but the difficulty is in getting it out cheaply; unfortunately, by our present method, the expense of extracting would far exceed the value of the amount gained. It is the same with Philadelphia bricks. They contain gold to such an extent that every medium-sized house can be said to contain about \$30 worth of gold in its bricks; but we have no cheap method which permits of the extraction of this gold at a profit.

The existence of silver in sea-water is most easily demonstrated by the old yellow metal torn from ship-bottoms. This is an alloy of copper and zinc, which, by prolonged contact with the ocean, becomes partly oxidized and dissolved; but by galvanic action receives in return a deposit from the more electro-negative metal dissolved in the water, on the same principle as a copper solution deposits this metal on iron with which it is brought in contact. Sheets of metal which have been on ocean-going vessels for at least six years, contain always one part of silver in about three thousand parts of metal. As every year about 1,000,000 pounds of metal are used, which must be renewed every six years, there are in that length of time some 167 by 6, or 1000 pounds, of silver reduced from the ocean, if we assume that about one-half of the original weight of copper and zinc has disappeared in that time. This silver, however, is not utilized; but the old metal is simply melted over to make new sheets out of it.

A CHANGING NATION.

WITHIN the last seventy-five years France has been three times a republic, three times an imperial monarchy under the Bonapartes, three times a Bourbon kingdom, once a constitutional monarchy under Louis Philippe, and once a military dictatorship under Cavaignac. But even that statement does not show all the changes in the form of government within the period named. The first Napoleon was Consul for a term of years, then Consul for life, then Emperor. Louis Napoleon was first President, then President for life, then Emperor. Of all these various forms of governments the republics have been the shortest-lived, with the single exception of the "hundred days" of the first Napoleon, from March to June, 1815. The duration of the rule of Louis Napoleon, from 1848 to 1870, as President and Emperor, was the longest of all; and next to that was the reign of the "constitutional king," Louis Philippe, from 1830 to

1848. Of those who were sovereigns for life, or who have held executive power for a specified term of years in France, from the days of Louis XV. down to the present time, only one man, Louis XVIII., reached the end of his term. Louis XVI. died on the scaffold; his republican successors were either guillotined or assassinated; the First Consul declared himself Emperor and then died in exile; Charles X. was driven from the throne by the revolution of 1830, and died in exile; Louis Philippe was dethroned by the revolution of 1848, and ended his career as an exile; the provisional republic of Lamartine, which succeeded him, was a short-lived failure, succeeded by the military dictatorship of Cavaignac; then came the Presidency of Louis Napoleon, which was ended by his *coup d'état* of December, 1851, to be followed by the "Empire" in December, 1852, and this, after a lapse of eighteen years, is followed by captivity, dethronement, and exile in 1870.—*Phil. Ledger.*

DOES THE EARTH GROW SICK?

PROFESSOR TYNDALL startled the reading world, not long ago, by announcing that living germs in the atmosphere are taken into the lungs by respiration, and may occasion fatal disease, or give rise to epidemics whose cause has been hitherto unknown. His experiments settled the fact that such germs exist in large numbers, and the inference seemed inevitable that they must often originate disease in the human system.

Students of physical science, observing on a larger scale, suggest that there may be a subtle connection between the physical changes of the earth and the fearful epidemics which traverse the globe, sweeping away millions of victims. The observations have not yet been long or accurate enough to determine the precise connection, but enough is known to indicate that such a connection exists. The atmosphere surrounding the earth is in sympathy with forces operating beneath the surface. Earthquakes beget tempests, and it

seems natural that abnormal telluric influences should manifest themselves in organic life.

A Mr. Parkin, of England, has prosecuted extensive inquiries in respect to atmospheric and telluric conditions, preceding and accompanying the ravages of the black death in past ages, and the cholera in our century. He finds that the black death began its fatal progress in 1333, and during the next seventeen years swept across Asia and Europe, gathering in a terrible harvest. Coincident with its birth China was rocked by earthquakes, swept by deluges, and parched by drouths. The disturbances in the elements, celestial and terrestrial, were in harmony with the plague. All were engaged in the work of destruction.

As the disease spread westward, through Asia and Europe, the abnormal phenomena outran its progress. They generally manifested themselves before its work began, and heralded its advent. Whether the disturbance of the elements caused the disease, or whether both alike were the result of some unknown law, science can not at present determine. It is enough to know that some subtle bond of connection exists, which may at a future day be discovered.

The same facts reveal themselves in the history of the cholera. It began its ravages, like the black death, in Eastern Asia, not spreading, however, beyond the mountain ranges into the North. A singular parallelism marked the progress of the two diseases. Breaking out in China, the black death reached the frontiers of Europe, at Constantinople, in fourteen years. The cholera starting in Eastern India, reached the borders of Eastern Europe at Astrakhan, in twelve years, but did not cross the frontier for another year. They both completed the circuit of Europe, one by a southern, the other by a northern route, in four years.

The physical phenomena were equally remarkable. Earthquake, flood and drouth went before the messenger of death. In all the countries it visited, some or all of these terrible heralds announced its coming. The earth was convulsed with sickness, no less than the human race.

These facts are suggestive. In this age of scientific knowledge and achievement, when human genius aspires to solve all problems and to vanquish all obstacles, it teaches

that there is a vast realm of the unknown which may lie beyond human penetration, and there are forces operating on human destiny which man can never control. Sanitary precautions in ordinary seasons may regulate the public health, but they cannot ward off these extraordinary visitations. Within certain limits man is master of his own destiny ; beyond these limits he seems powerless, the victim of circumstances he can neither understand nor control.

ENGLISH LITERATURE.

PART FOURTH.

" A sincere lover of Literature loves it for itself alone ; and it rewards his affections. He is sheltered as in a fortress. Whatever troubles and sorrows may besiege him outside, his well of water, his corn, and his wine, are safe within the walls. The world is shut out."

PERIOD OF DEAD ENGLISH, 1250-1350.

WE are now to consider the state of literature in England from the time of the frustration of the efforts of Henry III. to deprive the people of their rights in 1228, to the active wars of Edward III., which are marked, among other battles, by that of Cressy in 1346.

Three kings of England have reigned more than fifty years each. They are Henry III., Edward III., and George III., and two of them come under our notice now. After Henry III., who was feeble and irresolute, came Edward I., a firm and clear-headed sovereign. His son, Edward II., was weak and dissolute, and he was followed by the warlike and ambitious Edward III., one of the most powerful rulers the country has ever had.

The thirty-five years of the reign of Edward I. are marked by wars in Wales, Scotland and France. The first resulted from Edward's ambition to see Wales annexed to England, which end it effected. During the Welsh war the queen became the mother of a son, born at Caernarvon, who was

declared prince of Wales, a title which is still given to the eldest son of the royal family. At this period also occurred the traditional slaughter of the Welsh bards, upon which the poet Gray founded his spirited ode, beginning—

“Ruin sieze thee, ruthless King!
Confusion on thy banners wait!”

The Scottish campaign brings to mind the patriotic, romantic and almost legendary stories of Robert Bruce and William Wallace.

Edward II. also had war in Scotland, and at the noted battle of Bannockburn in 1314, his army of 100,000 was routed by only 30,000 Scots under the redoubtable Bruce.

Edward III., after some battles in the same land, turned to France, the crown of which he claimed through his mother. This claim led to a series of brilliant encounters, in which the king, and his son, called the Black Prince, greatly distinguished themselves. Victory was won by the yeoman-soldiers, who thus were educated to self-respect and to a love of independence, which is apparent in the period of Reviving English.

One other influence was exerted at this period to which we must devote a few words. The popes, who had great power in England, as well as elsewhere throughout christendom, had been forced to leave Rome, where their authority had been supreme, and to take up their abode at Avignon, in France, where they were in a less independent position. Here they remained for seventy years, and not only was their influence jealously watched in England, but the suspicious feeling gave rise to a dislike of the papal abuses which became more and more pronounced. These circumstances all contributed to increase the spirit of patriotism, and to advance the growth of independence which were felt in literature, and laid a good foundation for the advance of the next age.

To the period of Dead English we must trace the beginnings of many characteristic English institutions, of which the House of Commons was one. It was the seed time—a time of preparation—and after the sunshine of an active patriotism had exerted its quickening influence the seed

bore fruit. The principles needed warming and nursing, but if they had not been in existence they would never have been developed.

The unwonted agitation caused by the Crusades had excited Europe for two centuries, and this was now on the decline. The wonderful ascendancy of the wealthy religious orders began to bring about a reaction, and the orders of mendicant friars were formed for the purpose of exerting a counteracting influence. To these latter orders belonged most of the prominent authors of the period, and it is interesting to note that all the compositions that have come down to us in the vernacular are in metrical form. The people's speech was growing in disfavor among the learned as the process of disintegration continued. This was not only because it became unfashionable among the higher classes. There were better reasons than that, though fashion was powerful even then. The changes in English were apparent to all, and as one word was seen to lose a syllable, and another to assume a new form, writers concluded that they must look elsewhere for a permanent language in which to embody important thoughts. Besides, it was not to be supposed that readers out of England would study the literature of a language that was disparaged at home. Writers therefore who desired their works to be of long life or to be read on the continent, used Latin rather than English, and this added to the difficulties in the way of the improvement of the vernacular, and the growth of its literature. So far as literature is concerned, then, English was little used, less esteemed, and in this sense may be said to have been dead.

A general view of the literature of England at this period must include some reference to that fruit of British thought recorded in Latin. The greatest mind of the time, and one of the very greatest of all time, was that of Roger Bacon, who was born in 1214, and died about 1294. He was an humble and honest Franciscan friar, an independent thinker, a devoted student and an earnest worker for the good of others. The poverty and lack of general culture in his order rendered it difficult for him to commit the fruit of his studies to writing, and all that he did write is in Latin.

The pope, Clement IV., desired to be informed of the true nature of the investigations made by Bacon, and in consequence, the laborious philosopher produced three works in a very brief space of time. They are entitled *Opus Majus*, *Opus Minus*, and *Opus Tertium*. The pope was, however, not enlightened by them, for before they reached him he was attacked by a mortal illness. Valuable as these works are in the history of philosophy, they only express to the student of English literature the fact that the vernacular was in a state of decadence at the period.

After this towering genius the writer who attracts our attention is Robert Groseteste, or Greathead, bishop of Lincoln. He is credited with the honor of directing Bacon in his studies, though it is not known to what extent his influence was exerted upon his great pupil. Deeply pained by the abuses of those who pretended to support the Church, he opposed them with word and efficient act. He even went to the pope for help, and when leaving his holiness after a fruitless effort, he exclaimed aloud, "Oh money, money, how much can you do!—especially at the court of Rome." In pursuance of his efforts to purify the Church he removed seven abbots and four friars whom he found unworthy of their offices, and over whom his bishopric extended. He estimated the income of the foreign clergy in England, at three times that of the king. The king was often thwarted by him in his plans, but still considered him a fountain-head of erudition and wise counsel, and Matthew Paris, a Monk of St. Albans, approved his efforts to reform the house of prayer, which had well nigh become a den of thieves. Robert Groseteste appears as truly catholic in his spirit and teachings as his opponents were narrow and bigoted. The legends that bells were heard in the air by several persons the night of his death, and that miracles were wrought at his tomb show the regard which the people bore him. He was one of the most voluminous authors England has produced, though many of his books have been lost, and many of them at least were in Latin or French.

Robert Mannyng, of Brunne, or, as it is now called Bourne, in Lincolnshire, is the only other writer who need

detain us from a consideration of the more agreeable period just before us. His work is the most considerable of all those now extant written at this time, and Dr. Marsh says it is the last conspicuous production before the revival in English literature. This is a translation and continuation of a French rhyming chronicle of Britain, and, as the author avers, was written that the people might have solace when they sat together in fellowship, by reading it aloud, as was then customary. It is cheerful in style and strong English in phrase. The same author has left us, also, a book of morals in rhyme in which the design is to amuse and teach. This is accomplished by illustrating the Ten Commandments and the Seven Deadly Sins, by means of doctrine and anecdote. An example will show how this is done. The statement is made, under the head of Pride, that women's trailing dresses are wrong, and it is illustrated by the "French tale, how the devil has power over women's trains." "A woman with a long train passes two monks; one sees a devil sitting on it, and, when she turns her tail to the monk, the devil falls into the mud. Therefore know that the devil has power over women's long tails." Such tales would hardly be considered convincing arguments now, and it is not on their account that the writings of Robert of Brunne are valuable. They contain vivacious, accurate and minute pictures of society, which, like many others in our literature, enliven history and help us realize its scenes. The literary merits are slender, which is what one would expect of a writer in the vernacular, during the period of Dead English.

Not only was the vernacular little used, but writers mixed it at times with both Latin and French, in the same work, sometimes in the same line. The following is only one among many similar quotations that might be made. "God Lord Almighty, *da pacem*, Christe benigne."

Let us now drop this unpromising period with the closing remark that it exhibits a stage in the growth of the English mind, when the literature was in a comparatively dormant state.

ARTHUR GILMAN.

IN THE YEAR NINE.

I HEARD a voice that cried, "Bazaine,
 "Give me my legions back again!"
 And only silence answered it.

Then, like a vision of the night,
 I seemed to see where Varus stood
 At bay by Teutoburger Wood.
 And here the camp whose ample spread
 Bespoke ranks undiminished;
 And there the shrunken camp and low
 Of the shorn remnant 'scaped the foe;
 And further in the dismal glen
 Storm-pelted troops of bleeding men,
 While yonder, stretched upon the ground,
 Varus, with self-inflicted wound;
 And, deadlier than the pass, the glade
 To wasted cohorts disarrayed.
 Great was the din arose: the cry
 Of anguish and of victory,
 Smooth Latin accents, faint, forlorn,
 By German guttural overborne,
 Clatter of armor, hiss of dart,
 The spoiler's wrangling for his part;
 And musical upon the breeze
 The clang of trophy-laden trees.

So sped the vision, but the wind,
 Straight from the South, still lagged behind,
 "Varus!" it wailed, as if in pain,
 "Give me my legions back again!"
 Was it the North wind spoke?—so clear
 The words that fell upon my ear:
 "Cæsar!"—and Hermann's voice I knew
 Not less though he was lost to view—
 "The dead are dead, the slain are slain,
 "Your legions come not back again.
 "Yours be the loss, the spoils be mine;
 "They fare not well who cross the Rhine."

PHILIP NEWPORT.

EDUCATION is by far the best legacy that a parent can
 leave to his offspring.

EDUCATIONAL INTELLIGENCE.

GEORGIA.—The Appleton Church Home, located at Macon, Ga., has been opened and is now in full operation. It owes its origin to the benevolence of Wm. H. Appleton, Esq., senior partner of the firm of D. Appleton & Co., New York, to whose mind the idea was suggested by the success attending the Protestant Church Schools in Germany. The objects of the Institution are to educate and train orphan girls, the children of deceased soldiers, and to utilize Christian women in works of mercy. The orphans will be as comfortably housed and maintained as any children in Georgia. They will be under the physical, mental, moral, and religious training of educated and accomplished women, known as sisters, who devote themselves to the service solely from motives of Christian benevolence. What is ultimately designed as the eastern wing of a large edifice with a frontage of 150 feet, has been erected. This building is 50 x 46 feet—two stories in front and three in the rear, and very neatly and commodiously arranged for the purposes of the institution. It is designed to accommodate, for the present, about thirty children. The Home starts without debt, with provision ahead, sufficient to carry it on five years, and with \$6,500 subscribed to a permanent endowment fund. When the building is completed according to the original plan, it is believed it can be easily filled with young, bright and promising beneficiaries, who, but for this munificent provision, would grow up destitute of religious and literary training, as well as most of the comforts of life. The entire institution, with its buildings, lands, income, endowment, “sisters” and children, is under the control of Bishop Beckwith, of the Episcopate of Georgia.

VERMONT.—The Secretary of the State Board of Education, Dr. John H. French, has been having a plain talk with the Legislature on the Educational prospects of the State. He told them that one great obstacle to progress is “*the want of qualified teachers*.” Teachers and Town Superintendents and the press of the State have often discussed it.

What then prevents our teachers from being what they should be? Does the fault lie with the teachers themselves? In part it does. But here is not half, not a tenth part of the trouble. Is it with our 240 Town Superintendents? They, too, it must be admitted, have not done their whole duty; but the chief trouble is not with them. Is it with our 7,000 prudential committeemen of the various school districts? They are partly to blame; but the main cause lies further back. The chief fault is with the *eighty thousand* parents. If *they* did their full duty, if they would insist on better teachers, the committeemen and town superintendents would do their work better and our schools would soon show improved results.

Another great cause of the low condition of our schools, is the *low wages paid to teachers*. The returns of the schools for the last year show that the average cost of our schools, for teachers' wages and current expenses, has been but \$7.05 per week. They show that the average cost of the schools, for teachers and all current expenses, has been but \$151.36 a year. Is it reasonable to suppose that competent teachers can be got for five dollars a week and board themselves? Yet some receive even less than that.

Again, the school year is too short. The average length of the school year in Vermont is but a little over *twenty-one* weeks—21.47. One little county maintains its schools for 36 weeks in the year. The shortest school year is but *seventeen* weeks and three-tenths.

In November, 1866, the State passed a law, providing that no teachers should be employed in the schools without a certificate from the secretary given after examinations at the institutes, or a diploma from a normal school, after November, 1871. This law was well meant, but it has proved entirely inadequate to its object. Under it 181 teachers have received institute certificates, and 169 have taken normal school diplomas. Allowing for losses, it is plain that there are not three hundred teachers, qualified by that law, available for our 2,750 schools; and it will be of course impossible for over 2,000 teachers to become qualified under it in the year to come. Some legislation to meet this emergency is imperative, and the State Board

of Education has drafted a bill which will be presented to the Legislature, providing for the examination of teachers by town superintendents under certain restrictions, and allowing the Secretary to issue State certificates, but only to those who have taught. Another and most important means of supplying the lack of qualified teachers will be the adoption of the *town system* of schools. This system is not fully understood. It is simply creating a single school district of the size of the town, and permitting the district to maintain as many schools as are needed within its limits. Massachusetts and Pennsylvania adopted this system several years ago, and find it suited to their need. Some of the advantages of this system were very fully set forth by Secretary Rankin in his last report. . Some additional advantages, not mentioned by him, are the securing of more work from teachers by employing them in two schools successively; better qualifications in the teachers, arising from increased encouragement; larger schools and better classification. Under this system central schools would be kept a term or more in nearly every town. All the schools would be kept open the same length of time—in the weak districts as long as in the strong ones. Greater uniformity in teaching would be secured and taxation greatly equalized and reduced. If division of labor is economy in all else, why not in education? The farmer will go a long way to get his horses shod by a skillful blacksmith; he will carry his milk five miles to a cheese factory; but he takes his children to the nearest school, however poor it be. Why should he not secure the best division of labor and equalization of the burdens, in like manner, by adoption of the town system of schools? A third remedy will be found in encouraging teachers to fit themselves for their work by finishing their education at the expense of the State. How shall this be done? Recognizing such a thing as science in teaching, we ask for training schools for teachers, such as are established to train experts in other sciences, or in other words, for Normal Schools, such as are found in other States. There are fifty-two such schools in the United States. The State of New York expends \$150,000 a year on her Normal Schools.

The appropriations for single Normal Schools range from \$500 in Vermont to \$18,750 in New York. In no State outside of Vermont is the attempt made to sustain a Normal School on an appropriation less than \$5,000. This State grants but \$500, and only to aid scholars who sign a declaration of their poverty. This all are reluctant to give, and we find that but two hundred out of the eight hundred who have entered our three Normal Schools, were willing to accept State aid under such circumstances. The aid given by the State should be free to all, or all should be compelled to pay alike.

We have three Normal Schools, and they have done a good work. They are gaining in public estimation and in the number of their pupils. All three have done but half as much as is done in a single school in other States. They cannot do what they would and should, with such meagre appropriations. If continued, they should have at least \$5,000 a year a piece, to bring them up to the level of other States. Whatever number of schools we decide to maintain should be liberally maintained."

Mr. J. E. Goodrich also addressed the Legislature, showing the advantages of the town system, and demonstrating that its benefits would be best secured by the more sparsely settled communities. Massachusetts through the town system has lessened the number of the districts, secured better teachers by paying them better, has kept the schools longer, and in many towns carried the distant children to and from school; all at *greatly reduced expense*. He showed how the money wasted in hiring cheap teachers in the little schools could be better spent in carrying the children to a larger and better school. He urged competitive examinations of teachers, and showed how that plan had worked in Chittenden county. He called attention to some serious defects in the school census as at present taken, and urged the need of better classification in the census. At present, no proper enumeration of the children is secured. He also spoke a hearty word for the Teachers' State and County Associations. The teachers now not only give their time and labor but their money to sustain them. They are most useful means of improvement for the teachers, and the

State cannot do so much good with a little money as in aiding them. The State needs, as a matter of true economy, to spend more money on its schools, and thus make what it spends do more work and better work. With an earnest denial of the assertion sometimes heard, that the educational interests of the State are waning, Mr. Goodrich closed. His remarks were exceedingly forcible and instructive, and we regret that our limited space allows us to give no fuller report of them.

NEW YORK.—The recent Teachers' Institute for Chautauqua County, held in the hall of the Union School and Collegiate Institute, Jamestown, N. Y., was one of the largest, if not the largest ever held in the State. There were over seven hundred members in attendance. Unusual interest was maintained throughout the entire session of two weeks, the citizens of the town crowding to the evening meetings. Prof. James Johonot was the Conductor and principal Instructor. He mainly devoted himself to the discussion of the principles of instruction, and their application to the branches taught in our schools. Several practical lessons were given each day in Vocal Culture and Physical Culture by Prof. White and Miss Flora M. Shearman. Commissioners Pickard and Woodward deserve great credit for their able management of the business matters of the Institute.

At the last meeting of the New York State Teachers' Association, the Committee on Necrology, of which J. B. Thomson, LL.D., is Chairman, presented the following report :

Among those who have been called home were three of prominence and great usefulness—Mrs. Emma Willard, of Troy ; Miss Helen M. Sever, of the Oswego Normal School, and the Hon. Victor M. Rice.

Mrs. Willard was born in Berlin, Conn., February 23, 1787. She commenced her career as a teacher at the age of seventeen. Not content with her attainments in science and literature, she spent the next three years in teaching and studying alternately, and, at twenty, took charge of an important academy in Middlebury, Vt. Here, by earnest

devotion to her profession, she soon acquired an enviable reputation as a teacher. It was here that she became the wife of Dr. John Willard. Reverses of fortune having come upon her husband, she opened a school and resolved to devote herself to the cause of female education. In 1818 she devised a plan for a Female Seminary of high order, and sent it to Governor Clinton, of New York, requesting his co-operation and legislative aid in carrying it into effect. The result was that the Legislature passed an Act, granting, thenceforth, a portion of the Literature Fund to Female Seminaries. In 1821, she established the distinguished Seminary at Troy, an institution which still remains an ornament to the city in which it stands, a nursery of sound learning, and a lasting monument of praise to its gifted founder. To Mrs. Willard the cause of female education is greatly indebted for the high and noble rank it now holds in the United States. It was through her untiring exertions that the female mind in this country was first provided with facilities for obtaining a knowledge of the Classics, Mathematics, Natural Philosophy, and Metaphysics. She died in May of the present year, mourned not only by her relatives but by the hosts of her pupils, and the friends of education throughout the land.

Miss Seaver was born in Albany, Vt., in 1829. Her education was completed at the High School of Lowell, Mass., where she graduated with honor, having gained the respect and affection of her teachers by close attention to study and strict conformity to the regulations. In 1854, she commenced teaching in Oswego, N. Y., and by earnest devotion to the interests of her pupils, soon attracted the attention of her patrons, and won her way to distinction among an accomplished class of teachers. As evidence of her success, she received an appointment in the Normal and Training School at Oswego, near the time of its organization, and continued in it till February, 1869, when failing health compelled her to leave. She returned to her native State, and died August 29, 1869. Such was her devotion to her work, that in her declining hours, she regretted the necessity of leaving it in what seemed to her an unfinished state. Miss Seaver was a lady whose earnestness and sym-

pathy at once enlisted the love and confidence of her pupils, and drew around her a large circle of devoted friends who deeply mourn her loss.

The Hon. Victor M. Rice was born in Mayville, Chautauqua Co., N. Y., in 1818. In 1841, he graduated at Allegheny College, Penn., and in 1844 became the associate proprietor of a popular private academy in Buffalo. In 1852, we find Mr. Rice in the public service as Superintendent of the schools in the same city, an office which his enthusiasm and benevolent heart eminently qualified him to fill. Soon after the organization of the New York State Teachers' Association, he became one of its members and continued until death to give it his hearty support. He was chosen President in 1853, and presided over the deliberations of the Association with ability and impartiality. But a wider field of usefulness was about to open before him. In 1854, the Legislature passed an Act creating the Department of Public Instruction, and Mr. Rice was elected to the office of State Superintendent. It is well known that he, was one of the most earnest advocates of the establishment of this Department; the appointment was, therefore, a fitting reward for his exertions, and a high compliment to the profession of which he was an active member. Among the more prominent reforms brought about during the first term of his administration, and of which it is understood he was the prime mover, were, the *creation of the office of School Commissioner, the abolishment of that of town Superintendent, and the publication, by legislative authority, of the "Code of Public Instruction."* These were all-important movements in the right direction. In 1861, he was elected to the State Legislature, where he did good service as Chairman of the Committee on Education. The next year Mr. Rice was again elected Superintendent of Public Instruction, and, in 1865, was re-elected to the same high and honorable office. During his last two terms of office, he secured the revision of the "General School Laws," and greatly increased the number and efficiency of Teachers' Institutes. It is to him also that the cause of public education is chiefly indebted for the five new Normal Schools. And last, but not least, to his exertions is due in great

measure the passage of the Act which abolished the old, odious Rate Bills, and established the glorious Free School system. The part which Mr. Rice took in the accomplishment of this important change, deserves a remembrance more lasting than marble or bronze ; it will have an immortality fresh and green, in the hearts of all who shall drink at the fountains of free education in the Empire State. But words fail to do justice to the enthusiasm, the generous impulses, and the untiring earnestness of his nature. On the 29th of October, 1869, he died of congestion, in the full vigor of manhood, tenderly loved by his family, and highly esteemed by the friends of education.

In closing the report, the Committee submitted the following resolutions :

Whereas, It has pleased Him whose right it is to rule, to remove from us during the past year, three of our most distinguished and esteemed fellow-laborers ; therefore

Resolved, That while it becomes us to bow with submission to the divine dispensations, we cannot but feel that in the death of Mrs. Emma Willard, Miss Helen M. Seaver, and the Hon. Victor M. Rice, whose counsels have so often aided us in our daily toils, whose presence and electric enthusiasm has so often cheered and strengthened us in our annual gatherings, that the cause of education and the profession of teachers have lost three of their ablest champions and most devoted friends.

Resolved, That this Association tender to the bereaved families of the deceased, their deepest sympathy in these hours of darkness and sorrow.

Resolved, That a copy of these resolutions be sent to them, signed by the President and Secretary of the Association.

CURRENT PUBLICATIONS.

MESSRS. IVISON, BLAKEMAN, TAYLOR & Co., New York, have added to their already extended list of School Books, the following, heretofore published by Messrs. Theodore Bliss & Co., of Philadelphia: "Prof. Dana's Manual of Geology," "Prof. Dana's Text-Book of Geology," "Prof. Silliman's First Principles of Chemistry," and "Prof. Silliman's Principles of Physics, or Natural Phi-

losophy." They have recently published "Greek Praxis, or Greek for Beginners," by Prof. J. A. Spencer. Also, "First Steps in Music, by George B. Loomis." This is a brief course of instruction in Music, prepared for the primary grades of public schools.

MESSRS. CHARLES SCRIBNER & Co. have just issued the fourth volume of "Mommson's History of Rome." It well maintains the character won by those which preceded it. The same careful investigation, and examination of social as well as political changes, is noticeable as in those, and the story is more fully told as the situation increases in interest. The period embraced is only about thirty-two years, from the death of Sulla, to the battle of Thapsus, and the rise of the empire. This completes the work, so far as the author has yet given it to the world, and the volume before us is greatly increased in value by the addition of an Index to the whole, which was prepared in this country, and expressly for this edition. Also, another volume of the "Illustrated Library of Wonders"—"Wonders of Acoustics; or, the Phenomena of Sound." It is from the French of Rodolphe Radau. It has one hundred and fourteen illustrations. 267 pages. Price, \$1.50.

MESSRS. HARPER & BROTHERS, Franklin Square, New York, have published and added to "French's Mathematical Series," "Mental Arithmetic;" combining a complete system of rapid computations, with correct logic of the solutions of problems, and the analyses of processes, by John H. French, LL.D. One hundred and eighty pages, finely illustrated—price, 50 cents. "An Index to Harper's New Monthly Magazine, volumes I to XL, from June, 1850 to May, 1870." Of fresh issues of their Standard Library of Select Novels, we have the following: "Which is the Heroine?" "The Vivian Romance," "The Heir Expectant," and "Estelle Russell."

MESSRS. D. APPLETON & Co., New York, have made a valuable addition to their list of School Books in "Cornell's Physical Geography;" accompanied with nineteen pages of maps, a great variety of map-questions, and one hundred and thirty diagrams and pictorial illustrations: and embracing a detailed description of the Physical Features of the United States. The engraver has handsomely performed his part, and a cursory examination leads us to believe that the author's work has been intelligently and conscientiously done.

MESSRS. GOULD & LINCOLN, Boston, have published an "Outline of Sir William Hamilton's Philosophy:" a text-

book for Students, by J. Clark Murray, with an introduction by James McCosh, LL.D., of "Princeton, New Jersey, U. S." Dr. McCosh seems to be in demand for Introduction-writing. However, to permit him to scribble a few commendatory sentences and call it an "introduction," is doubtless a cheap way of making an "introduction" of the book into Princeton College.

MESSRS. A. L. BANCROFT & CO., San Francisco, send us "Bancroft's School Diary." They claim that "it is simple, comprehensive and cheap."

BERNHARD MARKS, Principal of Lincoln Grammar School, San Francisco, has published a "Normal Tract on Numeration and Notation." Also, a "Normal Tract on Common Fractions," with a new system of Cancellation and a brief essay on teaching the subject.

MESSRS. DODD & MEAD, New York, have added two little volumes to their "Juno Series:" "Juno on a Journey," and "Hubert." They contain about 300 pages each, are nicely illustrated, and are beautiful and interesting volumes for the young. Price, \$1.25. "Nelly's Dark Days" is also a very neat little volume. 140 pages. Price, 75 cents.

HENRY L. HINTON, New York, has published "School Days at Mount Pleasant, including sketches and legends of the Neutral Ground, by Ralph Morley." The volume is dedicated "to the battalions of Cadets, who have, in successive years, gone forth from the time-honored walls of Mount Pleasant Academy, 'armed and equipped' for the battle of life." The work is illustrated, and is well worthy a perusal."

BOOKS EXPECTED.—Professor John S. Hart, Principal of the New Jersey State Normal School, is preparing a thorough treatise on the subject of Sabbath Schools, covering a field of effort in which the author has been actively engaged for a number of years. The volume will be issued from the press of J. C. Garrigues & Co., Philadelphia.—Prof. Chevalier Rœhrig, of Cornell, is writing an extremely curious and interesting book on the Indians of the far West.—"The Bremen Lectures," by Drs. Lange, Tischendorf, etc., translated from the German, by Rev. D. Heagle, is announced, as in press, by Gould & Lincoln.—Mr. Whittier is reading the proofs of his new volume of poems, and constantly adding to its bulk, so that it is yet impossible to say exactly when it will be out.—Ex-Governor Foote, of Tennessee, is writing a history of "Venice and the Venetians."—"The Philosophy of Art," by Saml. P. Long, and

Taine's "Art in the Netherlands," will be republished.—It is reported that John S. C. Abbott is preparing a history of Prussia.—Dr. Gannett is preparing a life of John Simmons, founder of Simmons' Female College.—John Burroughs, the naturalist, will soon have ready a volume of popular sketches.—A new edition of Mr. John Hosack's ingenious book, "Mary, Queen of Scots, and her Accusers," is nearly ready.—Among the new books announced is a metrical version of "The Arabian Nights." It is to appear under the title of "Pearls from the Orient."—A life of Napoleon III., with an account of his imprisonment at Ham and his escape from the fortress, is announced in London, from the pen of his private secretary, F. T. Brifault.—Smith, Elder & Co., advertise a new translation of the "Divina Commedia" of Dante, by the Rev. James Ford, prebendary of Exeter; and a volume of "Essays of an old Optimist," by John William Kaye.—Dr. Richard Morris has in the press a short elementary "Historical English Grammar."—Prof. Max Müller has a third volume of his "Chips from a German Workshop" in the press.—A grammar of the Siamese language is to be published at Bangkok by J. T. Jones.—A daughter of Thomas Hood, Mrs. Brodrip, has in press a story entitled "The Whispers of a Shell; or, Stories of the Sea."—Messrs. Longmans are preparing a uniform edition of Mr. Disraeli's novels, to which the author will prefix a new general preface.

MISCELLANEA.

PROFESSOR RÆHRIG, of Cornell University, has recently organized a class in Chinese. About thirty-five students have begun the study. The novelty of the undertaking, and the immense field for young men in the Celestial Empire is a strong incentive.

DR. C. S. CARTEE, for many years one of the most popular schoolmasters in the city, has been appointed librarian of the Public Library, Boston.

MR. HORACE FAIRBANKS, of St. Johnsbury, Vt., has completed a library building, at a cost of \$50,000, and has presented it to the town for public use. He has fitted up a large hall in the same building, for public lectures. This he has supplied with the new American folding settees.

MISS ETTA R. BARSTOW, a school teacher in Canton, Mass., has been stoned to death. The heathen of Canton, Mass., are little better than those of Canton, China.

IN 1811 George Bancroft was a student at Philips Academy, Exeter, N. H., and recently he sent the trustees two thousand dollars for a scholarship, with a letter, in which he said: "A school-boy is forgotten in the places of his haunts, but for himself, he can never forget them."

VASSAR COLLEGE has a fund of \$50,000, whose interest is appropriated to indigent students. The names of those who receive its help are never disclosed, so that the fund may not involve any peculiarity in their relations to the other pupils.

GIRARD, in founding his college, gave special instructions that no minister should ever darken its doors; and care is taken to have his injunctions carried out to the letter. One day—as the story goes—a man called, more noted for his iniquity than for his piety, but who always wore a white choker. On presenting himself at the door, he was politely told that gentlemen of his cloth were not allowed to enter. "The devil they ain't!" was his response. "All right," said the attendant, "you can pass in. I was mistaken in the man." The story may not be true nor of the choicest style, but it preaches a telling sermon on Girard's nonsense.

JOHN HOPKINS, a wealthy citizen of Baltimore, is about to expend several millions of dollars in building and endowing a University; a Hospital free to all, without respect to race or color; and an Asylum for Colored Orphan Children.

THE late Mr. John Simmons, of Boston, has left property valued at \$1,300,000 for the endowment of an institution to be called the Simmons Female College, for the purpose of teaching medicine, music, drawing, designing, telegraphy, and other branches of art, science and industry, best calculated to enable the scholars to acquire an independent livelihood.

THE Franklin College building recently erected at Wilmington, Ohio, at a cost of between thirty and forty thousand dollars, has just been purchased at a sheriff sale by the Society of Friends. The purchasers will at once finish the building, and open a college under their auspices. When completed the building and grounds will have cost about \$50,000.

ALONG the Sierra Nevada, close to the line of snow, a plant grows of sizes varying from an inch to two inches

thickness and height, to the dimensions of the largest cabbages. It is known as the snow-cactus, and depends for moisture upon the melting snow. It has been recently proposed to treat this plant as a table-vegetable, and it is said that, boiled and served up like asparagus, it is found equally succulent and satisfactory.

THE average depth of the Atlantic Ocean is set down at thirteen thousand four hundred feet, and that of the Pacific at eighteen thousand. On the western side of St. Helena, soundings have been made, it is said, to the depth of twenty-seven thousand feet—five miles and a quarter—without touching bottom.

IN the south of France an immense business is devoted to the cultivation of flowers for the purpose of extracting their perfumes. The product of one year has been 1,475,000 pounds of orange blossoms, 530,000 pounds of rose, 100,000 pounds of jessamine, 75,000 pounds of violets, 45 pounds of acacia, 30,000 pounds of tuberose, 5,000 pounds of dafodils, besides a large quantity of lavender and many other flowers. The odors are extracted by means of fats which absorb the essential oil.

THE colony of Victoria covers an area nearly as large as that of Great Britain, and contains a population of only 700,000 persons. The climate resembles that of the south of Spain and the south of Italy, the mean temperature being about 58 degrees. Frosts are of rare occurrence, and snow never falls except upon table lands or the mountains. Of the 55,500,000 acres of land comprised within the limits of the colony, nearly 49,000,000 acres remain in the possession of the Crown.

THE following figures are sufficiently serious:—In Birmingham, with a population of 360,000, of which 83,000 are children varying in age between 3 and 13 years, only 16,000 children frequent inspected schools, and 10,000 non-inspected schools. In Leeds, with a population of a quarter of a million, only 12,000 children were educated at inspected schools, and 7,000 at other schools out of 58,000 of a scholarly age. In Manchester, out of 60,000 children 25,000 were scholars at inspected schools. In Liverpool the number was 30,000 out of 90,000. These facts were arrived at quite recently.

A YOUNG lady who teaches music in an academy in Western New York, sent an order to the publisher recently, in which she had spelled the words very poorly. She apologized by adding a postscript as follows: "You must exkews this letter, as I pla bi noat butt spell bi ear."

SCIENTIFIC.

SUGAR is by no means of recent discovery. It must have existed in China and India for a very long time, and probably it was produced there, almost spontaneously, in a wild state. The first writers who mentioned it, called it Indian salt. A celebrated Roman physician of the name of Domitian said that, whilst by its color and hardness it resembled salt, in sweetness it was like honey. As is the case even now with tea to a great extent on the Continent, sugar was used by the Romans for medicinal purposes only. With the importation of the cane, however, into Europe—either by the Saracens or by the Europeans on their return from the Crusades—sugar acquired a new and greater importance as an article of commerce and industry. Landed first at Cyprus and Sicily, it was thence carried into Madeira; and at the commencement of the sixteenth century was transplanted to Brazil and to several Spanish West India Islands. Introduced into Barbadoes, under the auspices of a warmer temperature (sugar thriving best when the mean temperature is 76 deg. or 77 deg.), it speedily became a most profitable industry. The Caribbee Islands followed, and so great was the avidity to cultivate it that—laborers being scarce, and the work of cultivating the cane in so hot a climate by white men so very difficult—the idea suggested itself of getting negroes for the purpose, for which the slave trade was established on the coast of Guinea.

NEW YORK will soon have the distinction of owning two bridges, ranging among the most magnificent in the world—one at her door, and the other within reach, so to speak—both amazing highways, being pretty much of a size. That on the Hudson, between Anthony's Nose and Fort Clinton, will have a span of about 1,600 feet, which is just the measure of the other; but the expense will no doubt be different, on account of the foundations, since the high rocks of the Hudson river offer, as it were, a foundation ready made, while, for a "base of operations" on the Sound, they must begin with diving cases, and make their "hard pan" at a great expense. As it is intended to construct the former bridge with steel cables, securing the qualities of lightness and strength, the Brooklyn thoroughfare will no doubt have the benefit of the same material.

PHOSPHORIC ACID.—Very weak phosphoric acid is a strong poison for all kinds of insects, and yet helps plants, by adding to the soluble phosphates in the soil, and can do them no harm. Extensive use of it is predicted in agriculture.

EXPERIMENTS have been made at the Hotel-Dieu Hospital, Paris, of an electrical heating apparatus, the trial of which has been so successful that it is proposed to warm all the other hospitals of Paris with it, instead of coal.





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